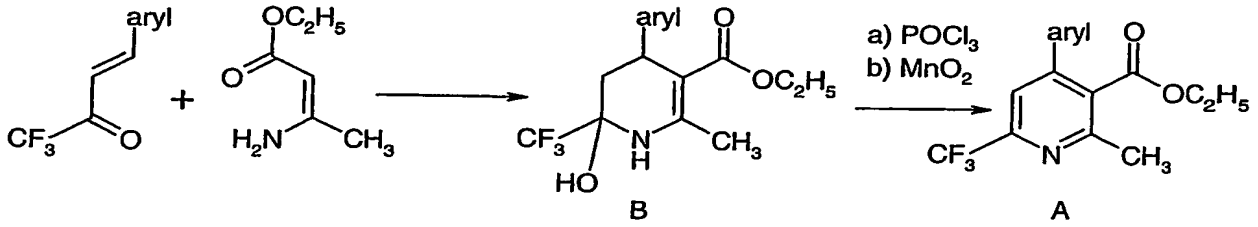
PROCESS FOR THE PRODUCTION OF SUBSTITUTED NICOTINIC ACID ESTERS

The present invention relates to a novel process for the preparation of 6-haloalkyl–3-nicotinic acid esters and also to novel enamine intermediates for use in that process.

6-Haloalkyl-3-nicotinic acid esters are valuable intermediates for the preparation of herbicides such as those described, for example, in WO 01/94339.

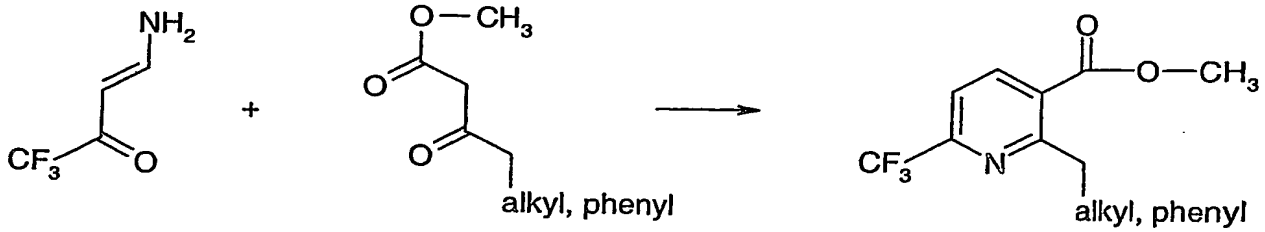
From Heterocycles, Vol. 48, No. 4, 1998, pages 779-785 it is known to prepare 6-trifluoro-3-nicotinic acid ethyl esters substituted by aryl in the 4-position, corresponding to formula A, by means of dehydrogenation and subsequent oxidation of the compound of formula B in accordance with the following scheme



B A

As a result of the uneconomic multi-step procedure, that process is not well suited to the large-scale preparation of 6-haloalkyl-3-nicotinic acid ethyl esters.

According to Heterocycles, Vol. 46, 1997, pages 129-132, 6-trifluoro-3-nicotinic acid methyl esters substituted by phenyl or alkyl in the 2-position, corresponding to formula C,



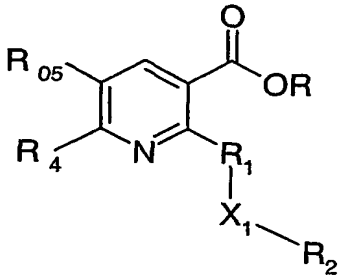
E D C

can be prepared by reacting a compound of formula E with a compound of formula D in benzene and in the presence of trifluoroacetic acid. In addition to unsatisfactory yields,

that process has the serious disadvantage for large-scale preparation that the quality of the enamine (E) used as starting material continuously deteriorates during storage as a result of polymerisation reactions, making it considerably more difficult to ensure a consistent product quality.

The problem of the present invention is consequently to make available a novel process for the preparation of 6-haloalkyl-3-nicotinic acid esters which makes it possible to prepare those compounds at reasonable cost, in high yields and with good quality.

The present invention accordingly relates to a process for the preparation of compounds of formula I



(I),

wherein

R is C_1-C_6alkyl;

R_{05} is Hydrogen, C_1-C_3alkyl, C_1-C_3haloalkyl or C_1-C_3alkyl-C_1-C_3alkoxy;

R_1 is a C_1-C_6alkylene, C_3-C_6alkenylene or C_3-C_6alkynylene chain which may be substituted one or more times by halogen and/or by R_5, the unsaturated bonds of the chain not being attached directly to the substituent X_1;

R_4 is C_1-C_4haloalkyl;

X_1 is oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N(R_6)-O-, -O-NR_{17}-, thio, sulfinyl, sulfonyl, -SO_2NR_7-, -N$R_{18}$$SO_2$-, -N($SO_2R_{18a}$)-, -N($R_{18b}$)C(O)- or -N$R_8$-;

R_{18a} is C_1-C_6alkyl;

R_2 is hydrogen or C_1-C_8alkyl, or is a C_1-C_8alkyl, C_3-C_6alkenyl or C_3-C_6alkynyl group which may be substituted one or more times by substituents selected from halogen, hydroxy, amino, formyl, nitro, cyano, mercapto, carbamoyl, C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6alkynyl, C_2-C_6haloalkynyl, C_3-C_6cycloalkyl, halo-substituted C_3-C_6cycloalkyl, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, C_1-C_6haloalkoxy, C_3-C_6haloalkenyloxy, cyano-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkylthio-C_1-C_6alkoxy, C_1-C_6alkylsulfinyl-C_1-C_6alkoxy, C_1-

C_6alkylsulfonyl-C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl-C_1-C_6alkoxy, C_1-C_6alkylcarbonyl, C_1-C_6alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylthio, C_1-C_6haloalkylsulfinyl, C_1-C_6haloalkylsulfonyl, oxiranyl (which may in turn be substituted by C_1-C_6alkyl), (3-oxetanyl)oxy (which may in turn be substituted by C_1-C_6alkyl), benzyloxy, benzylthio, benzylsulfinyl, benzylsulfonyl, C_1-C_6alkylamino, di(C_1-C_6alkyl)amino, $R_9S(O)_2O$-, $R_{10}N(R_{11})SO_2$-, rhodano, phenyl, phenoxy, phenylthio, phenylsulfinyl and phenylsulfonyl; it being possible for the phenyl- or benzyl-containing groups to be in turn substituted by one or more C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, halogen, cyano, hydroxy or nitro groups, or

R_2 is phenyl which may be substituted one or more times by C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, halogen, cyano, hydroxy or by nitro; or

R_2 is C_3-C_6cycloalkyl, C_1-C_6alkoxy- or C_1-C_6alkyl-substituted C_3-C_6cycloalkyl, 3-oxetanyl or C_1-C_6alkyl-substituted 3-oxetanyl; or

R_2 is a three- to ten-membered, monocyclic or fused bicyclic, ring system which may be aromatic, partially saturated or fully saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen, sulfur, and/or may contain the group -C(=O)-, -C(=S)-, -C(=NR_{19})-, -(N=O)-, -S(=O)- or -SO_2-, the ring system being attached to the substituent X_1 either directly or by way of a C_1-C_4alkylene, C_2-C_4alkenylene, C_2-C_4alkynylene, -N(R_{12})-C_1-C_4alkylene, -O-C_1-C_4alkylene, -S-C_1-C_4alkylene, -SO-C_1-C_4alkylene or -SO_2-C_1-C_4alkylene group and each ring system containing no more than 2 oxygen atoms and no more than two sulfur atoms, and it being possible for each ring system itself to be substituted one or more times by C_1-C_6alkyl, C_1-C_6haloalkyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6alkynyl, C_2-C_6haloalkynyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, mercapto, amino, hydroxy, C_1-C_6alkylthio, C_1-C_6haloalkylthio, C_3-C_6alkenylthio, C_3-C_6haloalkenylthio, C_3-C_6alkynylthio, C_1-C_3alkoxy-C_1-C_3alkylthio, C_1-C_4alkylcarbonyl-C_1-C_3alkylthio, C_1-C_4alkoxycarbonyl-C_1-C_3alkylthio, cyano-C_1-C_3alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6haloalkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylsulfonyl, aminosulfonyl, C_1-C_2alkylaminosulfonyl, N,N-di(C_1-C_2alkyl)aminosulfonyl, di(C_1-C_4alkyl)amino, halogen, cyano, nitro or by phenyl, it being possible for the phenyl group to be in turn substituted by hydroxy, C_1-C_6alkylthio, C_1-C_6haloalkylthio, C_3-C_6alkenylthio, C_3-C_6haloalkenylthio, C_3-C_6alkynylthio, C_1-C_3alkoxy-C_1-C_3alkylthio, C_1-C_4alkylcarbonyl-C_1-C_3alkylthio, C_1-C_4alkoxycarbonyl-C_1-C_3alkylthio, cyano-C_1-C_3alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6haloalkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylsulfonyl, aminosulfonyl, C_1-C_2alkyl-

aminosulfonyl, N,N-di(C_1-C_2alkyl)aminosulfonyl, di(C_1-C_4alkyl)amino, halogen, cyano or by nitro, and the substituents on nitrogen in a heterocyclic ring being other than halogen;
R_5 is hydroxy, C_1-C_6alkoxy, C_3-C_6cycloalkyloxy, C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy-C_1-C_6alkoxy or C_1-C_2alkylsulfonyloxy;
R_6, R_7, R_8, R_9, R_{10} R_{11}, R_{12}, R_{17}, R_{18} and R_{18b} are each independently of the others hydrogen, C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxycarbonyl, C_1-C_6alkylcarbonyl, C_1-C_6-alkoxy-C_1-C_6alkyl, C_1-C_6alkoxy-C_1-C_6alkyl substituted by C_1-C_6alkoxy, benzyl, or phenyl, it being possible for phenyl and benzyl to be in turn substituted one or more times by C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, halogen, cyano, hydroxy or by nitro; R_6 not being hydrogen when R_9 is hydrogen, C_1-C_6alkoxycarbonyl or C_1-C_6alkylcarbonyl;
or the group -R_1-X_1-R_2 together is C_1-C_6alkyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6-alkynyl, C_2-C_6haloalkynyl, C_3-C_6cycloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_1-C_6alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkyl, C_1-C_6haloalkylthio, C_1-C_6haloalkyl-sulfinyl, C_1-C_6haloalkylsulfonyl, C_1-C_6alkoxycarbonyl, C_1-C_6alkylcarbonyl, C_1-C_6alkylamino, di(C_1-C_6alkyl)amino, C_1-C_6alkylaminosulfonyl, di(C_1-C_6alkyl)aminosulfonyl, -NH-S-R_{13}, -N-(C_1-C_4alkylthio)-R_{13}, -NH-SO-R_{14}, -N-(C_1-C_4alkylsulfonyl)-R_{14}, -NH-SO_2-R_{15}, -N-(C_1-C_4alkylsulfonyl)-R_{15}, nitro, cyano, halogen, hydroxy, amino, formyl, rhodano-C_1-C_6-alkyl, cyano-C_1-C_6alkyl, oxiranyl, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, C_1-C_6alkoxy-C_1-C_6-alkoxy, cyano-C_1-C_6alkenyloxy, C_1-C_6alkoxycarbonyloxy-C_1-C_6alkoxy, C_3-C_6alkynyloxy, cyano-C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl-C_1-C_6alkoxy, C_1-C_6alkylthio-C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl-C_1-C_6alkylthio, C_1-C_6alkoxycarbonyl-C_1-C_6alkylsulfinyl, C_1-C_6alkoxycarbonyl-C_1-C_6alkylsulfonyl, C_1-C_6alkylsulfonyloxy, C_1-C_6haloalkylsulfonyloxy, phenyl, benzyl, phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, benzylthio, benzylsulfinyl or benzylsulfonyl, it being possible for the phenyl groups to be substituted one or more times by halogen, methyl, ethyl, trifluoromethyl, methoxy or by nitro;
or the group -R_1-X_1-R_2 together is a three- to ten-membered, monocyclic or fused bicyclic, ring system, which may be aromatic, partially saturated or saturated and which may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur and/or may contain one or two groups selected from -C(=O)-, -C(=S)-, -C(=NR_{20})-, -(N=O)-, -S(=O)- and -SO_2-; the ring system either being attached to the pyridine ring directly *via* a carbon atom or being attached to the pyridine ring *via* a carbon atom or *via* a nitrogen atom by way of a C_1-C_4alkylene, C_2-C_4alkenyl or C_2-C_4alkynyl chain, and it being possible for each ring system to contain no more than 2 oxygen atoms and no more than two sulfur atoms,

and it being possible for the ring system itself to be substituted one, two or three times by substituents selected from C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6alkenyl, C_3-C_6haloalkenyl, C_3-C_6alkynyl, C_3-C_6haloalkynyl, C_3-C_6cycloalkyl, hydroxy, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, mercapto, C_1-C_6alkylthio, C_1-C_6haloalkylthio, C_3-C_6alkenylthio, C_3-C_6haloalkenylthio, C_3-C_6alkynylthio, C_1-C_3alkoxy-C_1-C_3alkylthio, C_1-C_3alkylcarbonyl-C_1-C_3alkylthio, C_1-C_4alkoxycarbonyl-C_1-C_3alkylthio, cyano-C_1-C_3alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6haloalkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylsulfonyl, aminosulfonyl, C_1-C_2alkylaminosulfonyl, di(C_1-C_6alkyl)aminosulfonyl, C_1-C_3alkylene-R_{16}, amino, C_1-C_6alkylamino, C_1-C_6alkoxyamino, di(C_1-C_6alkyl)amino, (N-C_1-C_6alkyl)-C_1-C_6alkoxyamino, halogen, cyano, nitro, phenyl, benzyloxy and benzylthio, it being possible for phenyl, benzyloxy and benzylthio to be in turn substituted on the phenyl ring by C_1-C_3alkyl, C_1-C_3haloalkyl, C_1-C_3alkoxy, C_1-C_3haloalkoxy, halogen, cyano or by nitro, and substituents on a nitrogen atom in a heterocyclic ring being other than halogen;

R_{13} is N(H)-C_1-C_6alkyl, N(H)-C_1-C_6alkoxy, N-(C_1-C_6alkyl)-C_1-C_6alkyl, N-(C_1-C_6alkyl)-C_1-C_6alkoxy, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6alkenyl, C_3-C_6haloalkenyl, C_3-C_6alkynyl, C_3-C_6haloalkynyl, C_3-C_6cycloalkyl or phenyl, it being possible for phenyl to be in turn substituted by C_1-C_3alkyl, C_1-C_3haloalkyl, C_1-C_3alkoxy, C_1-C_3haloalkoxy, halogen, cyano or by nitro;

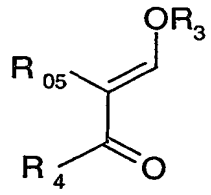
R_{14} is N(H)-C_1-C_6alkyl, N(H)-C_1-C_6alkoxy, N-(C_1-C_6alkyl)-C_1-C_6alkyl, N-(C_1-C_6alkyl)-C_1-C_6alkoxy, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6alkenyl, C_3-C_6haloalkenyl, C_3-C_6alkynyl, C_3-C_6haloalkynyl, C_3-C_6cycloalkyl or phenyl, it being possible for phenyl to be in turn substituted by C_1-C_3alkyl, C_1-C_3haloalkyl, C_1-C_3alkoxy, C_1-C_3haloalkoxy, halogen, cyano or by nitro;

R_{15} is N(H)-C_1-C_6alkyl, N(H)-C_1-C_6alkoxy, N-(C_1-C_6alkyl)-C_1-C_6alkyl, N-(C_1-C_6alkyl)-C_1-C_6alkoxy, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6alkenyl, C_3-C_6haloalkenyl, C_3-C_6alkynyl, C_3-C_6haloalkynyl, C_3-C_6cycloalkyl or phenyl, it being possible for phenyl to be in turn substituted by C_1-C_3alkyl, C_1-C_3haloalkyl, C_1-C_3alkoxy, C_1-C_3haloalkoxy, halogen, cyano or by nitro;

R_{16} is C_1-C_3alkoxy, C_2-C_4alkoxycarbonyl, C_1-C_3alkylthio, C_1-C_3alkylsulfinyl, C_1-C_3alkylsulfonyl or phenyl, it being possible for phenyl to be in turn substituted by C_1-C_3alkyl, C_1-C_3haloalkyl, C_1-C_3alkoxy, C_1-C_3haloalkoxy, halogen, cyano or by nitro; and

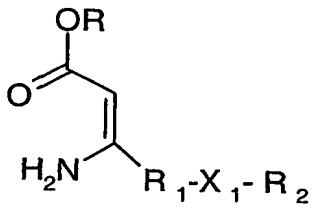
R_{19} and R_{20} are each independently of the other hydrogen, hydroxy, C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, cyano, C_1-C_6alkylcarbonyl, C_1-C_6alkoxycarbonyl or C_1-C_6alkylsulfonyl; which process comprises reacting

a compound of formula II



(II),

wherein R_3 is C_1-C_8alkyl or C_3-C_6cycloalkyl and R_4 and R_{05} are as defined for formula I, with a compound of formula III



(III),

wherein R, R_1, R_2 and X_1 are as defined for formula I, in an inert solvent in the presence of a proton source.

The alkyl groups appearing in the substituent definitions may be straight-chained or branched and are, for example, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, pentyl, hexyl, heptyl and octyl and also the branched isomers thereof. Alkoxy, alkenyl and alkynyl groups are derived from the mentioned alkyl groups. The alkenyl and alkynyl groups may be mono- or poly-unsaturated.

Halogen is generally fluorine, chlorine, bromine or iodine, preferably fluorine or chlorine. The same is also correspondingly true for halogen in conjunction with other meanings such as haloalkyl or halophenyl.

Haloalkyl groups preferably have a chain length of from 1 to 6 carbon atoms. Haloalkyl is, for example, fluoromethyl, difluoromethyl, trifluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, 2,2,2-trifluoroethyl, 2-fluoroethyl, 2-chloroethyl, pentafluoroethyl, 1,1-difluoro-2,2,2-trichloroethyl, 2,2,3,3-tetrafluoroethyl or 2,2,2-trichloroethyl; preferably trichloromethyl, difluorochloromethyl, difluoromethyl, trifluoromethyl or dichlorofluoromethyl.

As haloalkenyl there come into consideration alkenyl groups substituted one or more times by halogen, halogen being fluorine, chlorine, bromine or iodine, especially fluorine or chlorine, for example 2,2-difluoro-1-methylvinyl, 3-fluoropropenyl, 3-chloropropenyl, 3-bromopropenyl, 2,3,3-trifluoropropenyl, 2,3,3-trichloropropenyl and 4,4,4-trifluoro-but-2-en-1-yl. Among the C_3-C_6alkenyl groups substituted once, twice or three times by halogen, preference is given to those that have a chain length of from 3 to 5 carbon atoms.

As haloalkynyl there come into consideration alkynyl groups substituted one or more times by halogen, halogen being bromine, iodine or, especially, fluorine or chlorine, for example 3-fluoropropynyl, 3-chloropropynyl, 3-bromopropynyl, 3,3,3-trifluoropropynyl and 4,4,4-trifluoro-but-2-yn-1-yl. Among the alkynyl groups substituted one or more times by halogen, preference is given to those that have a chain length of from 3 to 5 carbon atoms.

Alkoxy groups preferably have a chain length of from 1 to 6 carbon atoms. Alkoxy is, for example, methoxy, ethoxy, propoxy, isopropoxy, n-butoxy, isobutoxy, sec-butoxy or tert-butoxy or the pentyloxy or hexyloxy isomers; preferably methoxy or ethoxy. Alkylcarbonyl preferably is acetyl or propionyl. Alkoxycarbonyl is, for example, methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, isopropoxycarbonyl, n-butoxycarbonyl, isobutoxy-carbonyl, sec-butoxycarbonyl or tert-butoxycarbonyl; preferably methoxycarbonyl or ethoxycarbonyl. Haloalkoxy groups preferably have a chain length of from 1 to 8 carbon atoms. Haloalkoxy is, for example, fluoromethoxy, difluoromethoxy, trifluoromethoxy, 2,2,2-trifluoroethoxy, 1,1,2,2-tetrafluoroethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2,2-difluoroethoxy or 2,2,2-trichloroethoxy; preferably difluoromethoxy, 2-chlorethoxy or trifluoromethoxy. Alkylthio groups preferably have a chain length of from 1 to 8 carbon atoms. Alkylthio is, for example, methylthio, ethylthio, propylthio, isopropylthio, n-butylthio, isobutylthio, sec-butylthio or tert-butylthio, preferably methylthio or ethylthio. Alkylsulfinyl is, for example, methylsulfinyl, ethylsulfinyl, propylsulfinyl, isopropylsulfinyl, n-butylsulfinyl, isobutylsulfinyl, sec-butylsulfinyl or tert-butylsulfinyl; preferably methylsulfinyl or ethyl-sulfinyl.

Alkylsulfonyl is, for example, methylsulfonyl, ethylsulfonyl, propylsulfonyl, isopropyl-sulfonyl, n-butylsulfonyl, isobutylsulfonyl, sec-butylsulfonyl or tert-butylsulfonyl; preferably

methylsulfonyl or ethylsulfonyl. Alkoxyalkoxy groups preferably have a chain length of from 1 to 8 carbon atoms. Examples of alkoxyalkoxy are: methoxymethoxy, methoxyethoxy, methoxypropoxy, ethoxymethoxy, ethoxyethoxy, propoxymethoxy and butoxybutoxy. Alkylamino is, for example, methylamino, ethylamino, n-propylamino, isopropylamino or the butylamine isomers. Dialkylamino is, for example, dimethylamino, methylethylamino, diethylamino, n-propylmethylamino, dibutylamino or diisopropylamino. Preference is given to alkylamino groups having a chain length of from 1 to 4 carbon atoms. Alkoxyalkyl groups preferably have a chain length of from 2 to 6 carbon atoms. Alkoxyalkyl is, for example, methoxymethyl, methoxyethyl, ethoxymethyl, ethoxyethyl, n-propoxymethyl, n-propoxyethyl, isopropoxymethyl or isopropoxyethyl. Alkylthioalkyl groups preferably have from 2 to 8 carbon atoms. Alkylthioalkyl is, for example, methylthiomethyl, methylthioethyl, ethylthiomethyl, ethylthioethyl, n-propylthiomethyl, n-propylthioethyl, isopropylthiomethyl, isopropylthioethyl, butylthiomethyl, butylthioethyl or butylthiobutyl. The cycloalkyl groups preferably have from 3 to 8 ring carbon atoms, for example cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl and cyclooctyl. Phenyl, including phenyl as part of a substituent such as phenoxy, benzyl, benzyloxy, benzoyl, phenylthio, phenylalkyl and phenoxyalkyl, may be present in substituted form, in which case the substituents may be in the ortho-, meta- and/or para-position(s). Preferred substituent positions are the positions ortho and para to the ring attachment position.

In accordance with the process according to the invention there are preferably prepared those compounds of formula I wherein

R_4 is halomethyl or haloethyl;

R_{05} is hydrogen;

X_1 is oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N(R_6)-O-, -O-NR_{17}-, thio, sulfinyl, sulfonyl, -SO_2NR_7-, -$NR_{18}SO_2$- or -NR_8-;

R_2 is hydrogen or C_1-C_8alkyl, or a C_1-C_8alkyl, C_3-C_6alkenyl or C_3-C_6alkynyl group which is substituted one or more times by halogen, hydroxy, amino, formyl, nitro, cyano, mercapto, carbamoyl, C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6-alkynyl, C_2-C_6haloalkynyl, C_3-C_6cycloalkyl, halo-substituted C_3-C_6cycloalkyl, or by C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, C_1-C_6haloalkoxy, C_3-C_6haloalkenyloxy, cyano-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkylthio-C_1-C_6alkoxy, C_1-C_6alkylsulfinyl-C_1-C_6alkoxy, C_1-C_6alkylsulfonyl-C_1-C_6alkoxy, C_1-C_6-alkoxycarbonyl-C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl, C_1-C_6alkylcarbonyl, C_1-C_6alkylthio,

C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylthio, C_1-C_6haloalkylsulfinyl, C_1-C_6-haloalkylsulfonyl, oxiranyl (which may in turn be substituted by C_1-C_6alkyl), or by (3-oxetanyl)oxy (which may in turn be substituted by C_1-C_6alkyl), or by benzylthio, benzylsulfinyl, benzylsulfonyl, C_1-C_6alkylamino, di(C_1-C_6alkyl)amino, $R_9S(O)_2O$-, $R_{10}N(R_{11})SO_2$-, rhodano, phenyl, phenoxy, phenylthio, phenylsulfinyl or by phenylsulfonyl; it being possible for the phenyl- or benzyl-containing groups to be in turn substituted by one or more C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, halogen, cyano, hydroxy or nitro groups, or

R_2 is phenyl which may be substituted one or more times by C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, halogen, cyano, hydroxy or by nitro; or

R_2 is C_3-C_6cycloalkyl, C_1-C_6alkoxy- or C_1-C_6alkyl-substituted C_3-C_6cycloalkyl, 3-oxetanyl or C_1-C_6alkyl-substituted 3-oxetanyl;

or R_2 is a five- to ten-membered, monocyclic or fused bicyclic, ring system which may be aromatic, partially saturated or fully saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen, sulfur, and/or may contain the group -C(=O)-, -C(=S)-, -C(=NR_{19})-, -(N=O)-, -S(=O)- or -SO_2-, the ring system being attached to the substituent X_1 directly or by way of a C_1-C_4alkylene, C_2-C_4alkenyl-C_1-C_4alkylene, C_2-C_4alkynyl-C_1-C_4alkylene, -N(R_{12})-C_1-C_4alkylene, -SO-C_1-C_4alkylene or -SO_2-C_1-C_4alkylene group and each ring system containing no more than 2 oxygen atoms and no more than two sulfur atoms, and it being possible for each ring system itself to be substituted one or more times by C_1-C_6alkyl, C_1-C_6haloalkyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6alkynyl, C_2-C_6haloalkynyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, mercapto, amino, hydroxy, C_1-C_6alkylthio, C_1-C_6haloalkylthio, C_3-C_6alkenylthio, C_3-C_6haloalkenylthio, C_3-C_6alkynylthio, C_1-C_3alkoxy-C_1-C_3alkylthio, C_1-C_4alkylcarbonyl-C_1-C_3alkylthio, C_1-C_4alkoxycarbonyl-C_1-C_3alkylthio, cyano-C_1-C_3alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6haloalkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylsulfonyl, aminosulfonyl, C_1-C_2alkylaminosulfonyl, N,N-di(C_1-C_2alkyl)aminosulfonyl, di(C_1-C_4alkyl)amino, halogen, cyano, nitro or by phenyl, it being possible for the phenyl group to be in turn substituted by hydroxy, C_1-C_6alkylthio, C_1-C_6haloalkylthio, C_3-C_6alkenylthio, C_3-C_6haloalkenylthio, C_3-C_6alkynylthio, C_1-C_3alkoxy-C_1-C_3alkylthio, C_1-C_4alkylcarbonyl-C_1-C_3alkylthio, C_1-C_4-alkoxycarbonyl-C_1-C_3alkylthio, cyano-C_1-C_3alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6haloalkyl-sulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylsulfonyl, aminosulfonyl, C_1-C_2alkylaminosulfonyl, N,N-di(C_1-C_2alkyl)aminosulfonyl, di(C_1-C_4alkyl)amino, halogen, cyano or by nitro, and the substituents on nitrogen in a heterocyclic ring being other than halogen;

R_6, R_7, R_8, R_9, R_{10} R_{11}, R_{12}, R_{17} and R_{18} are each independently of the others hydrogen, C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxycarbonyl, C_1-C_6alkylcarbonyl, C_1-C_6alkoxy-C_1-C_6alkyl, C_1-C_6alkoxy-C_1-C_6alkyl substituted by C_1-C_6alkoxy, benzyl, or phenyl, it being possible for phenyl and benzyl to be in turn substituted one or more times by C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, halogen, cyano, hydroxy or by nitro; R_6 not being hydrogen when R_9 is hydrogen, C_1-C_6alkoxycarbonyl or C_1-C_6alkylcarbonyl;
or the group -R_1-X_1-R_2 together is C_1-C_6alkyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6-alkynyl, C_2-C_6haloalkynyl, C_3-C_6cycloalkyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_1-C_6alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkyl, C_1-C_6haloalkylthio, C_1-C_6haloalkyl-sulfinyl, C_1-C_6haloalkylsulfonyl, C_1-C_6alkoxycarbonyl, C_1-C_6alkylcarbonyl, C_1-C_6alkylamino, di(C_1-C_6alkyl)amino, C_1-C_6alkylaminosulfonyl, di(C_1-C_6alkyl)aminosulfonyl, -NH-S-R_{13}, -N-(C_1-C_4alkylthio)-R_{13}, -NH-SO-R_{14}, -N-(C_1-C_4alkylsulfonyl)-R_{14}, -NH-SO_2-R_{15}, -N-(C_1-C_4alkylsulfonyl)-R_{15}, nitro, cyano, halogen, hydroxy, amino, formyl, rhodano-C_1-C_6alkyl, cyano-C_1-C_6alkyl, oxiranyl, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, C_1-C_6alkoxy-C_1-C_6alkoxy, cyano-C_1-C_6alkenyloxy, C_1-C_6alkoxycarbonyloxy-C_1-C_6alkoxy, C_3-C_6alkynyl-oxy, cyano-C_1-C_6alkoxy, C_1-C_6alkoxycarbonyl-C_1-C_6alkoxy, C_1-C_6alkylthio-C_1-C_6alkoxy, alkoxycarbonyl-C_1-C_6alkylthio, alkoxycarbonyl-C_1-C_6alkylsulfinyl, alkoxycarbonyl-C_1-C_6alkylsulfonyl, C_1-C_6alkylsulfonyloxy, C_1-C_6haloalkylsulfonyloxy, phenyl, benzyl, phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, benzylthio, benzylsulfinyl or benzylsulfonyl, it being possible for the phenyl groups to be substituted one or more times by halogen, methyl, ethyl, trifluoromethyl, methoxy or by nitro;
or the group -R_1-X_1-R_2 together is a five- to ten-membered, monocyclic or fused bicyclic, ring system, which may be aromatic or partially saturated and which may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur, the ring system either being directly attached to the pyridine ring or being attached to the pyridine ring by way of a C_1-C_4alkylene group, and it being possible for each ring system to contain no more than 2 oxygen atoms and no more than two sulfur atoms, and/or to contain the group -C(=O)-, -C(=S)-, -C(=NR_{20})-, -(N=O)-, -S(=O)- or -SO_2-;
and the ring system itself may be substituted one, two or three times by C_1-C_6alkyl, C_1-C_6-haloalkyl, C_3-C_6alkenyl, C_3-C_6haloalkenyl, C_3-C_6alkynyl, C_3-C_6haloalkynyl, C_1-C_6alkoxy, C_1-C_6haloalkoxy, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, mercapto, C_1-C_6alkylthio, C_1-C_6-haloalkylthio, C_3-C_6alkenylthio, C_3-C_6haloalkenylthio, C_3-C_6alkynylthio, C_2-C_5alkoxyalkyl-thio, C_3-C_5acetylalkylthio, C_3-C_6alkoxycarbonylalkylthio, C_2-C_4cyanoalkylthio, C_1-C_6alkyl-sulfinyl, C_1-C_6haloalkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_6haloalkylsulfonyl, aminosulfonyl,

C_1-C_2alkylaminosulfonyl, C_2-C_4dialkylaminosulfonyl, C_1-C_3alkylene-R_{16}, N(H)-C_1-C_6alkyl, N(H)-C_1-C_6alkoxy, N-(C_1-C_6alkyl)-C_1-C_6alkyl, N-(C_1-C_6alkyl)-C_1-C_6alkoxy, halogen, cyano, nitro, phenyl and by benzylthio, it being possible for phenyl and benzylthio to be in turn substituted on the phenyl ring by C_1-C_3alkyl, C_1-C_3haloalkyl, C_1-C_3alkoxy, C_1-C_3haloalkoxy, halogen, cyano or by nitro, and substituents on nitrogen in a heterocyclic ring being other than halogen; and

R_{19} and R_{20} are each independently of the other hydrogen, hydroxy, C_1-C_6alkyl, C_1-C_6-haloalkyl, C_1-C_6alkoxy, C_1-C_6alkylcarbonyl, C_1-C_6alkoxycarbonyl or C_1-C_6alkylsulfonyl.

The process according to the invention is especially suitable for the preparation of those compounds of formula I wherein R_1 is $-CH_2-$, $-CH_2CH_2-$, $-CH_2CH_2CH_2-$, $-CF_2-$, $-CH=CHCH_2-$, $-CH(CH_3)-$ or $-C\equiv CCH_2-$, but preferably $-CH_2-$, the free valency on the left in each case being attached to the pyridine ring.

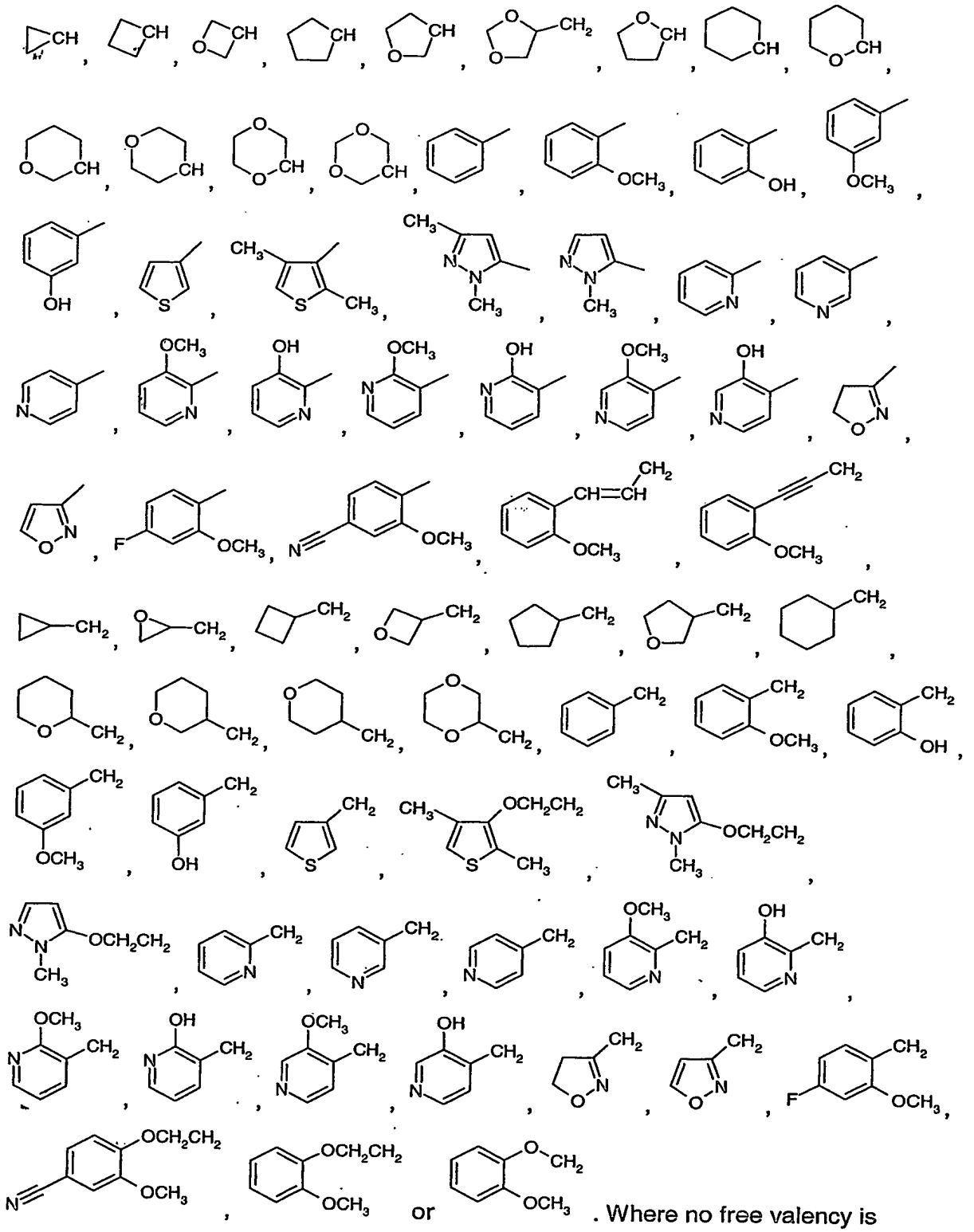
Preference is furthermore given to the preparation of those compounds of formula I wherein X_1 is oxygen, sulfonyl or a group $-NR_{18}SO_2-$, especially oxygen.

In accordance with the process according to the invention, special preference is given to the preparation of those compounds of formula I wherein R_2 is CH_3, CH_2CH_3, CH_2OCH_3, $CH_2OCH_2CH_3$, $CH_2CH_2OCH_3$, $CH_2CH_2OCH_2CH_3$, CH_2CF_3, propargyl, cyclopropylmethyl, benzyl, $CH_2CH_2SO_2CH_3$ or $CH_2CH_2OCH_2CH_2OCH_3$, but preferably $CH_2CH_2OCH_3$, with very special preference being given to those compounds wherein X_1 is oxygen and R_1 is $-CH_2-$.

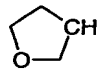
In accordance with the process according to the invention, preference is given to the preparation of those compounds of formula I wherein R_{05} is hydrogen, CH_3, CH_2Cl, CH_2Br or CH_2OCH_3, but especially hydrogen.

From that group, those compounds wherein R is ethoxy or methoxy may be prepared especially advantageously.

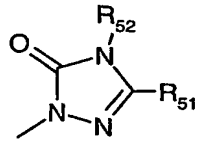
Furthermore, in accordance with the process according to the invention there may be advantageously prepared compounds of formula I wherein R_2 is



. Where no free valency is

indicated in those preferred meanings of R_2, as in the case of, for example,  , the attachment position is at the carbon atom marked "CH".

Furthermore, there may also be advantageously prepared those compounds wherein the group $-R_1-X_1-R_2$ together is a four- to ten-membered, monocyclic or fused bicyclic, ring system, which may be aromatic, partially saturated or saturated and contains from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur and/or contains one or two groups selected from -C(=O)-, -C(=S)-, $-C(=NR_{20})-$ and $-SO_2-$, the ring system being attached to the pyridine ring *via* a carbon atom or preferably *via* a nitrogen atom by way of a C_1-C_4alkylene chain, especially a methylene chain. Among such ring systems special mention may be made of the following preferred, four- to seven-membered ring systems attached *via* a nitrogen atom to the methylene group, the attachment position being shown in each case at the bottom left: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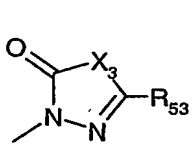
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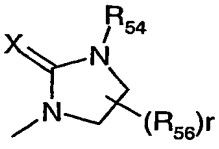
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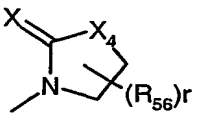
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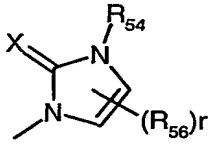
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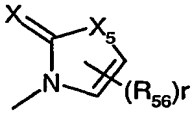
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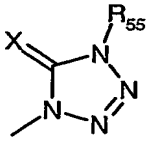
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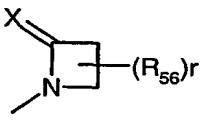
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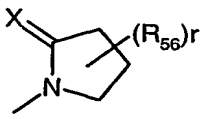
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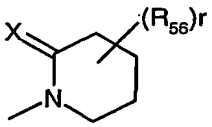
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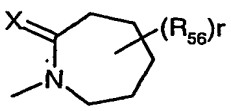
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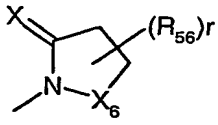
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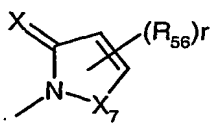
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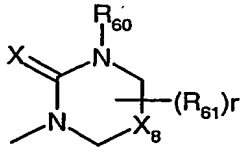
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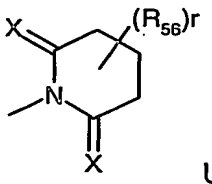
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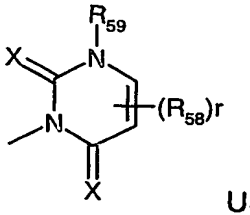
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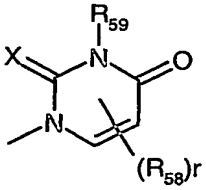
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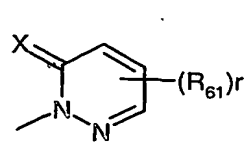
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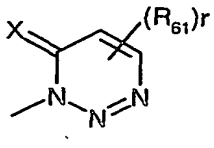
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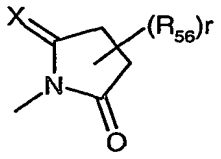
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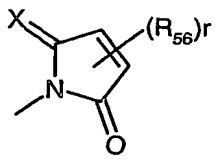
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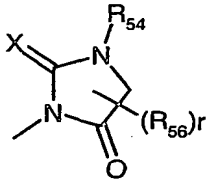
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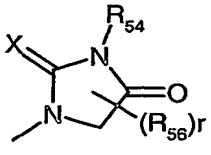
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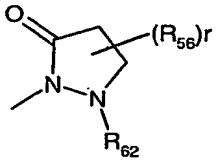
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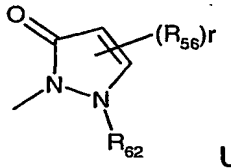
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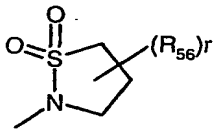
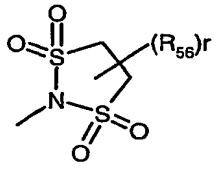
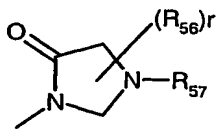
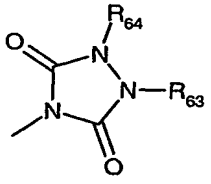
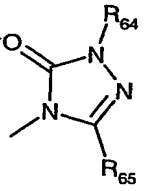

$U_{1.026}$,

$U_{1.027}$,

$U_{1.028}$,

$U_{1.029}$ and

$U_{1.030}$;

wherein r is 0, 1 or 2; R_{51}, R_{53}, R_{56} and R_{65} are each independently of the others hydrogen, halogen, C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6cycloalkyl, C_3-C_6alkenyl, C_3-C_6alkynyl, C_1-C_3alkoxy-C_1-C_3alkyl, C_1-C_6alkoxy, C_3-C_6alkenyloxy, C_3-C_6alkynyloxy, C_1-C_6alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_3-C_6alkenylthio or C_3-C_6alkynylthio; R_{52} is hydrogen, C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6cycloalkyl, C_3-C_6alkenyl, C_3-C_6alkynyl, C_1-C_6alkoxy, amino, or phenyl which may in turn be substituted by R_{70}; R_{54}, R_{55} and R_{60} are each independently of the others hydrogen, C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6alkenyl, C_3-C_6alkynyl or C_3-C_6cycloalkyl; R_{57}, R_{63}, R_{66}, R_{67}, R_{68} and R_{69} are each independently of the others C_1-C_6alkyl, or phenyl which may in turn be substituted by R_{70}; R_{64} is C_1-C_6alkyl, C_1-C_6haloalkyl, C_3-C_6cycloalkyl, C_3-C_6alkenyl, C_3-C_6alkynyl, or phenyl which may in turn be substituted by R_{70}; R_{58} and R_{61} are hydrogen, halogen, C_1-C_6alkyl or C_1-C_6haloalkyl; R_{59} is C_1-C_6alkyl, C_1-C_6haloalkyl, C_1-C_3alkoxy-C_1-C_3alkyl, C_3-C_6alkenyl or C_3-C_6alkynyl; R_{62} is hydrogen, C_1-C_6alkyl, C_1-C_4alkoxycarbonyl or C_1-C_4alkylthiocarbonyl; or R_{51} together with R_{52}, or R_{54} together with an adjacent group R_{56}, or R_{58} together with an adjacent group R_{59}, or R_{60} together with an adjacent group R_{61}, or, when r is 2, two adjacent groups R_{56} or two adjacent groups R_{61} together may form a saturated or unsaturated C_1-C_5alkylene or C_3-C_4alkenylene bridge, which may in turn be substituted by a group R_{70} or interrupted by

oxygen, sulfur or nitrogen; each R_{70} is independently halogen, C_1-C_3alkyl, C_1-C_3haloalkyl, hydroxy, C_1-C_3alkoxy, C_1-C_3haloalkoxy, cyano or nitro; X is oxygen, sulfur or NR_6; X_3, X_4 and X_5 are oxygen or sulfur; X_6 and X_7 are oxygen, sulfur, S(O) or SO_2; and X_8 is CH_2, oxygen, sulfur, S(O), SO_2 or NR_{71}, wherein R_{71} is hydrogen or C_1-C_6alkyl.

In the context of the present invention, preference is given to the group R_1-X_1-R_2 together being C_1-C_6alkyl, C_1-C_6haloalkyl, C_2-C_6alkenyl, C_2-C_6haloalkenyl, C_2-C_6alkynyl, C_2-C_6haloalkynyl, C_3-C_6cycloalkyl, C_1-C_6alkoxy or C_1-C_6alkylthio, e.g. methyl, ethyl, n-propyl, isopropyl, cyclopropyl, n-butyl, fluoromethyl, 2-fluoroethyl, difluoroethyl, trifluoroethyl, vinyl, 1-propenyl, methoxy, ethoxy, methylthio or ethylthio.

In the context of the present invention, preference is given to R being methyl, ethyl, n-propyl or isopropyl, especially ethyl.

R_3 is preferably methyl or ethyl, very especially ethyl.

R_4 is preferably trifluoromethyl, difluoromethyl, chlorodifluoromethyl, pentafluoroethyl, 2,2,2-trifluoroethyl, especially trifluoromethyl, chlorodifluoromethyl or difluoromethyl.

As inert solvents for the method according to the invention there are suitable, for example, aromatic solvents such as benzene, chlorobenzene, fluorobenzene, xylenes, toluene, or alcohols such as methanol or ethanol, and also ethyl acetate, acetonitrile, dimethyl sulfoxide, dimethylformamide, dimethylacetamide, N-methyl-2-pyrrolidone, acetone, butanone, halogenated solvents such as, for example, methylene chloride, trichloromethane, dichloroethylene or trichlorethane, ethers such as tetrahydrofuran, diethyl ether, 1,2-dimethoxyethane, dioxane or methyl tert-butyl ether. Ethanol and toluene are especially preferred.

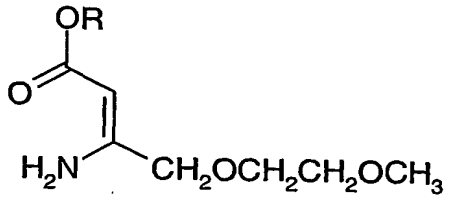
Organic or mineral acids are suitable as the proton source. Examples of suitable proton sources are HCl, HBr, H_2SO_4, carboxylic acids such as acetic acid and derivatives thereof such as trifluoroacetic acid and trichloroacetic acid, sulfonic acids such as methanesulfonic acid or p-toluenesulfonic acid and also carbonic acid. As the proton source for the process according to the invention special preference is given to trifluoroacetic acid.

The reactions can be carried out at ambient temperature or at elevated temperature. In general, addition of the reactants is carried out at a temperature from ambient temperature to the boiling point of the solvent, especially from 20 to 140°C, preferably from 40 to 120°C, with subsequent heating of the reaction mixture, advantageously to the boiling point of the solvent.

The compounds of formula II are known or are accessible by known methods. Processes for the preparation of compounds of formula II are described, for example, in J. Org Chem. (1995) vol 95, 3523, in H. Amil, T. Kobayashi, H. Terasawa, K. Uneyama, Org. Lett. 3(20), 3103-3105 (2001) and also A. Colla, G. Clar, S. Krimmer, P. Fischer, M.A.P. Martins, Synthesis-Stuttgart (6),483-486 (1991).

Some of the compounds of formula III are known. The preparation of such compounds is described in H. G. O. Becker, J. Prakt. Chem. (1961), Vol 12, 294., in WO 00/24714 and also in D.H. Wu, W. Wang, J. Labelled Compd. Rad 39(2),105-107(1997).

The compounds of formula III wherein $-R_1-X_1-R_2$ is $-CH_2-O-CH_2-CH_2-O-CH_3$, that is to say compounds of formula IIIa



(IIIa),

wherein R is as defined for formula III, are novel and were developed specifically for the preparation of compounds of formula I, and the present invention accordingly relates thereto. In a preferred compound of formula IIIa, R is methyl or ethyl.

Compounds of formula III can be prepared using processes known to the person skilled in the art, for example by reacting the unsaturated ketones on which they are based with ammonia gas as described in Preparation Example P1 hereinbelow.

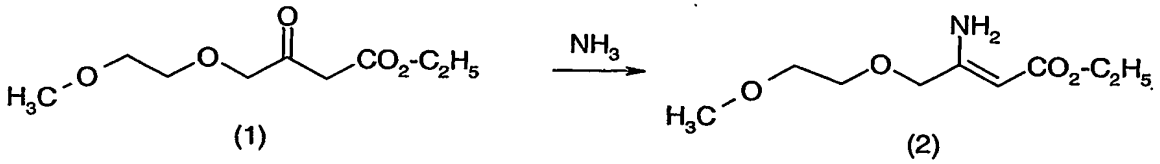
In a preferred embodiment of the process according to the invention, the starting compounds of formula III are prepared from the 3-oxo-carboxylic acid esters on which they are based by introducing ammonia gas and then, without further isolation, reacting

directly with the compounds of formula II. That process is especially advantageous for the large-scale preparation of compounds of formula I.

The compounds of formula I either may be used directly in the reaction mixture for further reactions or alternatively may be isolated. Isolation of the compounds of formula I can be carried out, for example, by extraction of the reaction mixture and subsequent removal of the solvent from the product-containing phase by customary methods.

The process according to the invention will be explained in greater detail in the following Preparation Examples:

Example P1: Preparation of 3-amino-4-methoxyethoxy-but-2-enoic acid ethyl ester:



(1) (2)

A mixture of 1.37 g (6 mmol) of 3-oxo-4-methoxyethoxy-butanoic acid ethyl ester (1) in 13 ml of ethanol is introduced into a reaction vessel and cooled to a temperature of 0°C using an ice/water bath.

Ammonia gas is then introduced for a period of 30 minutes, with stirring, and the reaction mixture is stirred for a further 20 minutes at a temperature of 0°C. After removing the cooling bath, the reaction mixture is allowed to warm up to a temperature of 20°C and ammonia gas is then introduced for a further hour. The reaction mixture is then stirred for 20 hours.

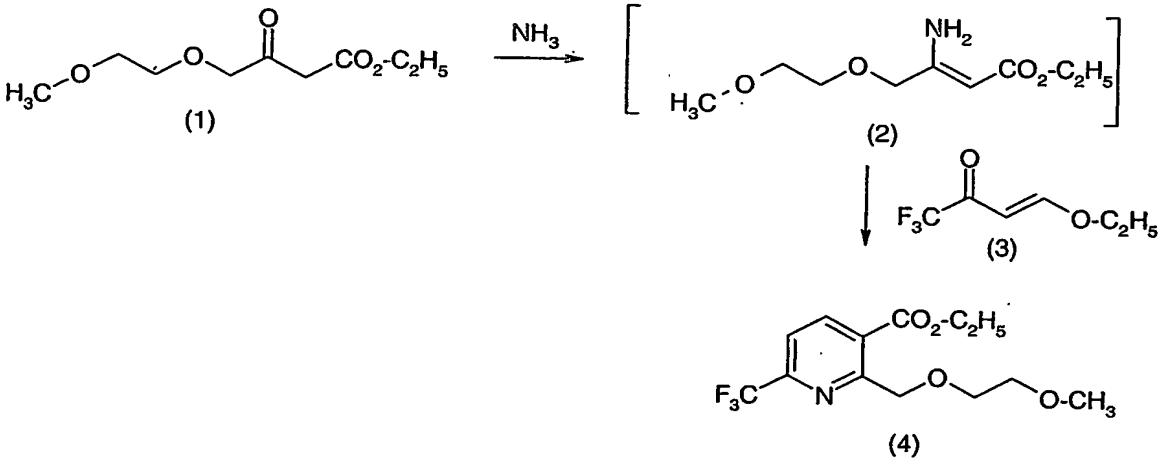
After removal of the solvent *in vacuo*, there are obtained 1.3 g (95 % of theory) of 3-amino-4-methoxyethoxy-but-2-enoic acid ethyl ester (2) in the form of an orange-coloured oil.

^{1}H NMR ($CDCl_3$): 1.30 (t, 3H, $C\underline{H}_3CH_2O$-), 3.40 (s, 3H, $CH_3\underline{O}$-), 3.55 (m, 2H, $OC\underline{H}_2CH_2O$), 3.60 (m, 2H, $OCH_2C\underline{H}_2O$), 4.10 (s, 2H, $C{=}CC\underline{H}_2O$-), 4.15 (q, 2H, $CH_3C\underline{H}_2O$-), 4.50 (s, 1H, $C\underline{H}{=}CNH_2$).

^{13}C NMR ($CDCl_3$): 14.7 (CH_3), 58.9 (CH_2), 59.2 (CH_3), 70.0 (CH_2), 71.0 (CH_2), 71.8 (CH_2), 81.9 (CH), 159.7 (C), 170.3 (C) .

MS: 203 (M^+), 158, 157, 144, 129, 114, 100, 98, 83, 71, 59, 45.

Example P2: Preparation of 2-methoxyethoxymethyl-3-ethoxycarbonyl-6-trifluoromethyl-pyridine (4):



A mixture of 52.3 g (0.24 mol) of 3-oxo-4-methoxyethoxy-butanoic acid ethyl ester (1) in 150 ml of toluene is introduced into a reaction vessel equipped with a water separator.

Ammonia gas is then introduced into the reaction mixture for 2 hours, with stirring. Refluxing is then carried out for 30 minutes and the water is collected in the separator. After cooling the reaction mixture to a temperature of 20°C, the procedure is repeated. Ammonia gas is again introduced for 1.5 hours, with stirring, and the reaction mixture is then refluxed in order to separate off the water.

After cooling the reaction mixture, which contains 3-amino-4-methoxyethoxy-but-2-enoic acid ethyl ester (2), to a temperature of 20°C, 48 g (0.248 mol) of 1-ethoxy-3-oxo-4-trifluorobutene (3) are added and stirring is carried out at a temperature of 20°C for 18 hours. 1.5 ml of trifluoroacetic acid are then added, stirring is carried out at a temperature of 20°C for 2 hours and refluxing is carried out for a further 2 hours.

The reaction mixture is then allowed to cool down to a temperature of 20°C and is then washed with 100 ml of 1M $NaHCO_3$. The aqueous phase is separated off and is then

extracted with 150 ml of toluene and the combined organic phases are then dried over $MgSO_4$.

After removal of the solvent *in vacuo*, there are obtained 65.4 g (62 % of theory) of 2-methoxyethoxymethyl-3-ethoxycarbonyl-6-trifluoromethylpyridine in the form of a dark-brown oil.

^{1}H NMR ($CDCl_3$): 1.40 (t, 3H, $C\underline{H}_3CH_2O$-), 3.35 (s, 3H, $C\underline{H}_3O$-), 3.55 (m, 2H, $OC\underline{H}_2CH_2O$), 3.70 (m, 2H, $OCH_2C\underline{H}_2O$), 4.45 (q, 2H, $CH_3C\underline{H}_2O$-), 5.00 (s, 2H, $ArC\underline{H}_2O$-), 7.70 (s, 1H, Ar$\underline{H}$), 8.30 (s, 1H, Ar$\underline{H}$).

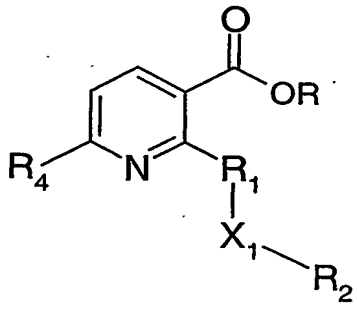
MS: 307 (M^+), 262, 248, 233, 204, 202, 161, 128, 109, 59, 45

The other compounds listed in Table 1 can also be prepared in that manner.

In the following Table, the valency on the left of the radical R_1 is attached to the pyridine ring. When no free valency is indicated in the case of the substituent R_2, as in the case of, for example, 

, the attachment position is at the carbon atom marked "CH".

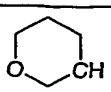
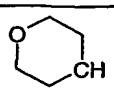
Table 1: Compounds of formula Ia

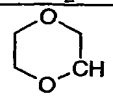
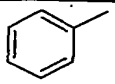
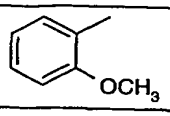
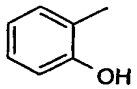
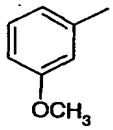
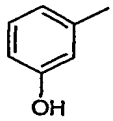
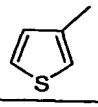
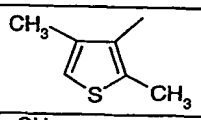
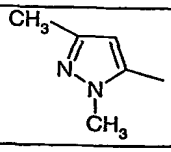
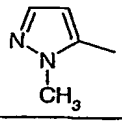
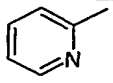
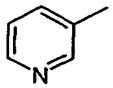
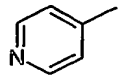
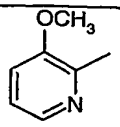


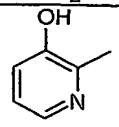
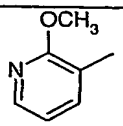
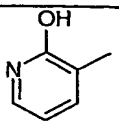
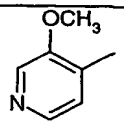
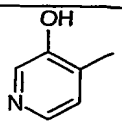
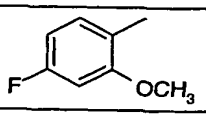
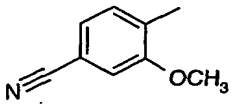
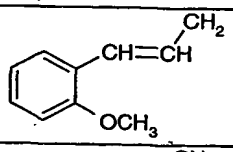
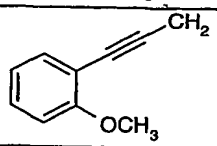
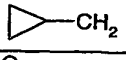
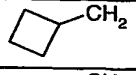
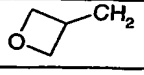
(Ib)

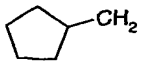
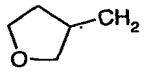
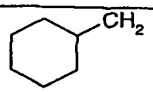
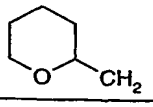
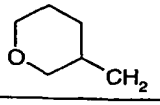
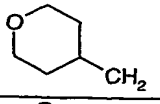
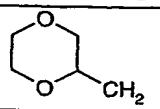
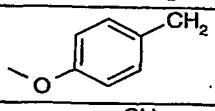
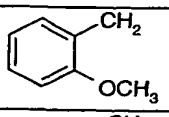
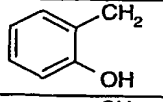
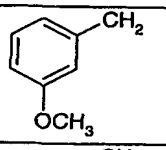
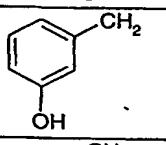
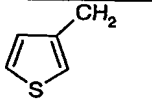
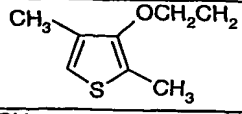
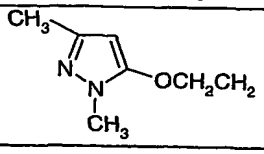
wherein R is methyl or ethyl:

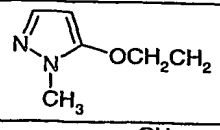
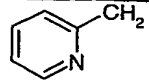
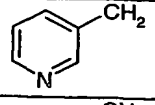
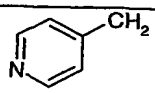
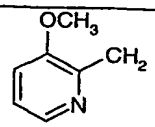
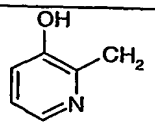
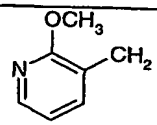
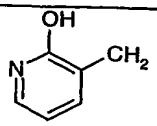
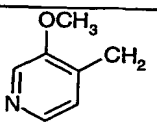
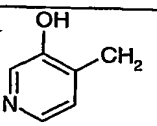
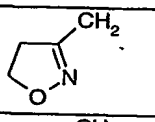
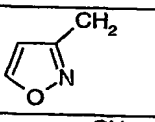
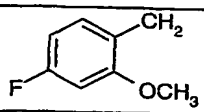
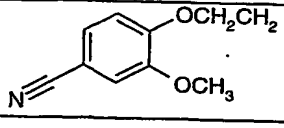
Comp. no.	R_4	R_1	R_2	X_1
A1	CF_3	CH_2	CH_3	O
A2	CF_3	CH_2	CH_2CH_3	O
A3	CF_3	CH_2	$(CH_3)_2CH$	O

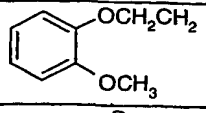
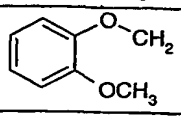
Comp. no.	R_4	R_1	R_2	X_1
A4	CF_3	CH_2	$PhCH_2$	O
A5	CF_3	CH_2	CH_3	S
A6	CF_3	CH_2	CH_3	SO
A7	CF_3	CH_2	CH_3	SO_2
A8	CF_3	CH_2	CH_3OCH_2	O
A9	CF_3	CH_2	$CH_3CH_2OCH_2$	O
A10	CF_3	CH_2	$CH_3OCH_2CH_2$	O
A11	CF_3	CH_2	$CH_3CH_2OCH_2CH_2$	O
A12	CF_3	CH_2	$CH_3OC(CH_3)_2CH_2$	O
A13	CF_3	CH_2	$CH_3OCH(CH_3)CH_2$	O
A14	CF_3	CH_2	$CH_3OCH_2CH(CH_3)$	O
A15	CF_3	CH_2	$CH_3OCH_2C(CH_3)_2$	O
A16	CF_3	CH_2	$CH_3OCH(CH_3)$	O
A17	CF_3	CH_2	$CH_3OC(CH_3)_2$	O
A18	CF_3	CH_2	$HC\equiv CCH_2$	O
A19	CF_3	CH_2	$H_2C=CHCH_2$	O
A20	CF_3	CH_2	$CH_3C\equiv CCH_2$	O
A21	CF_3	CH_2		O
A22	CF_3	$CH_2CH_2CH_2$		O
A23	CF_3	CH_2		O
A24	CF_3	CH_2		O
A25	CF_3	CH_2		O
A26	CF_3	CH_2		O
A27	CF_3	CH_2		O
A28	CF_3	CH_2		O
A29	CF_3	CH_2		O
A30	CF_3	CH_2		O

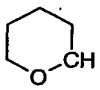
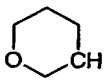
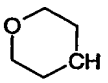
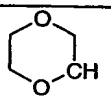
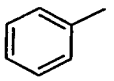
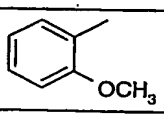
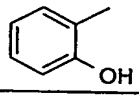
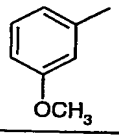
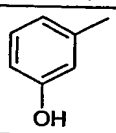
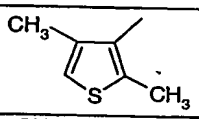
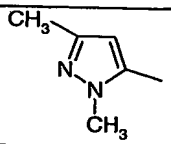
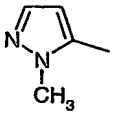
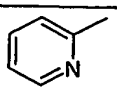
Comp. no.	R_4	R_1	R_2	X_1
A31	CF_3	CH_2		O
A32	CF_3	CH_2		O
A33	CF_3	CH_2		O
A34	CF_3	CH_2		O
A35	CF_3	CH_2		O
A36	CF_3	CH_2		O
A37	CF_3	CH_2		O
A38	CF_3	CH_2		O
A39	CF_3	CH_2		O
A40	CF_3	CH_2		O
A41	CF_3	CH_2		O
A42	CF_3	CH_2		O
A43	CF_3	CH_2		O
A44	CF_3	CH_2		O

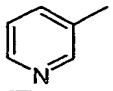
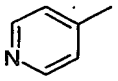
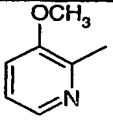
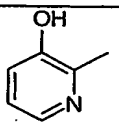
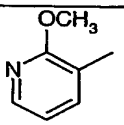
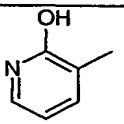
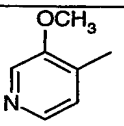
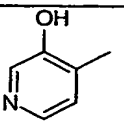
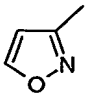
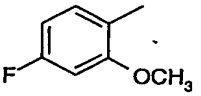
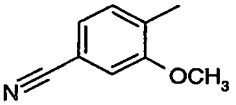
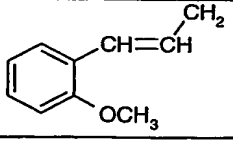
Comp. no.	R_4	R_1	R_2	X_1
A45	CF_3	CH_2		O
A46	CF_3	CH_2		O
A47	CF_3	CH_2		O
A48	CF_3	CH_2		O
A49	CF_3	CH_2		O
A50	CF_3	CH_2		O
A51	CF_3	CH_2		O
A52	CF_3	CH_2		O
A53	CF_3	CH_2		O
A54	CF_3	CH_2		O
A55	CF_3	CH_2		O
A56	CF_3	CH_2		O
A57	CF_3	CH_2		O
A58	CF_3	CH_2		O
A59	CF_3	CH_2		O

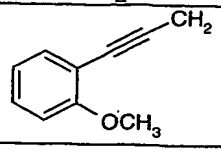
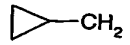
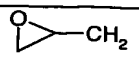
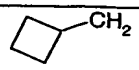
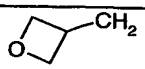
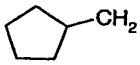
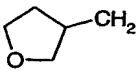
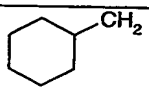
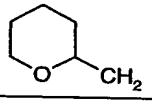
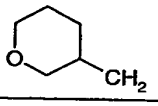
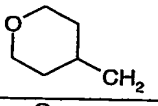
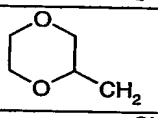
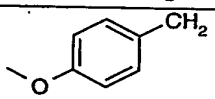
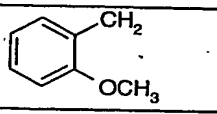
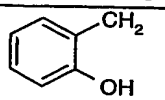
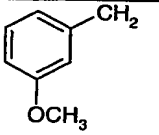
Comp. no.	R_4	R_1	R_2	X_1
A60	CF_3	CH_2		O
A61	CF_3	CH_2		O
A62	CF_3	CH_2		O
A63	CF_3	CH_2		O
A64	CF_3	CH_2		O
A65	CF_3	CH_2		O
A66	CF_3	CH_2		O
A67	CF_3	CH_2		O
A68	CF_3	CH_2		O
A69	CF_3	CH_2		O
A70	CF_3	CH_2		O
A71	CF_3	CH_2		O
A72	CF_3	CH_2		O
A73	CF_3	CH_2		O
A74	CF_3	CH_2		O

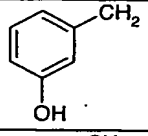
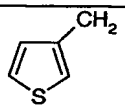
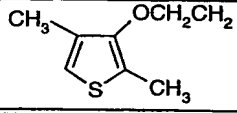
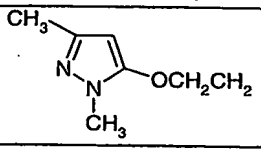
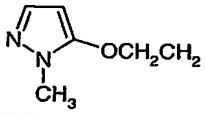
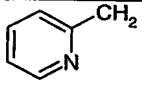
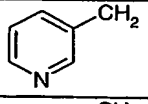
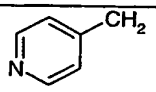
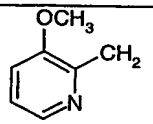
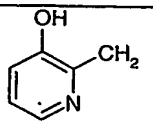
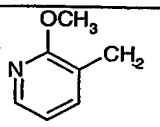
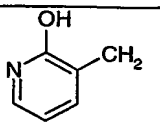
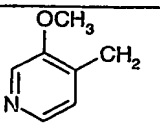
Comp. no.	R_4	R_1	R_2	X_1
A75	CF_3	CH_2		O
A76	CF_3	CH_2		O
A77	CF_3	CH_2		O
A78	CF_3	CH_2		O
A79	CF_3	CH_2		O
A80	CF_3	CH_2		O
A81	CF_3	CH_2		O
A82	CF_3	CH_2		O
A83	CF_3	CH_2		O
A84	CF_3	CH_2		O
A85	CF_3	CH_2		O
A86	CF_3	CH_2		O
A87	CF_3	CH_2		O
A88	CF_3	CH_2		O

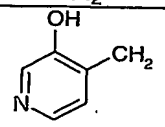
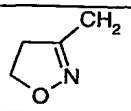
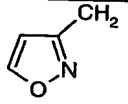
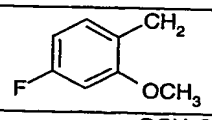
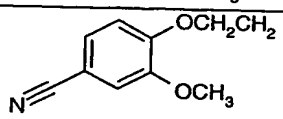
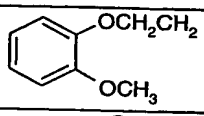
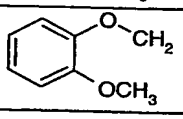
Comp. no.	R_4	R_1	R_2	X_1
A89	CF_3	CH_2		O
A90	CF_3	CH_2		O
A91	CF_3	CH_2CH_2	CH_3	O
A92	CF_3	CH_2CH_2	CH_3CH_2	O
A93	CF_3	CH_2CH_2	$(CH_3)_2CH$	O
A94	CF_3	CH_2CH_2	$PhCH_2$	O
A95	CF_3	CH_2CH_2	CH_3	S
A96	CF_3	CH_2CH_2	CH_3	SO
A97	CF_3	CH_2CH_2	CH_3	SO_2
A98	CF_3	CH_2CH_2	$(CH_3)_2CHCH_2$	O
A99	CF_3	CH_2CH_2	CH_3OCH_2	O
A100	CF_3	CH_2CH_2	$CH_3CH_2OCH_2$	O
A101	CF_3	CH_2CH_2	$CH_3OCH_2CH_2$	O
A102	CF_3	CH_2CH_2	$CH_3CH_2OCH_2CH_2$	O
A103	CF_3	CH_2CH_2	$CH_3OC(CH_3)_2CH_2$	O
A104	CF_3	CH_2CH_2	$CH_3OCH(CH_3)CH_2$	O
A105	CF_3	CH_2CH_2	$CH_3OCH_2CH(CH_3)$	O
A106	CF_3	CH_2CH_2	$CH_3OCH_2C(CH_3)_2$	O
A107	CF_3	CH_2CH_2	$CH_3OCH(CH_3)$	O
A108	CF_3	CH_2CH_2	$CH_3OC(CH_3)_2$	O
A109	CF_3	CH_2CH_2	$HC\equiv CCH_2$	O
A110	CF_3	CH_2CH_2	$H_2C=CHCH_2$	O
A111	CF_3	CH_2CH_2	$CH_3C\equiv CCH_2$	O
A112	CF_3	CH_2CH_2		O
A113	CF_3	$CH_2CH_2CH_2$		O
A114	CF_3	CH_2CH_2		O
A115	CF_3	CH_2CH_2		O
A116	CF_3	CH_2CH_2		O
A117	CF_3	CH_2CH_2		O

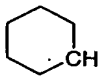
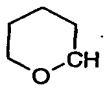
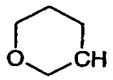
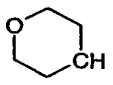
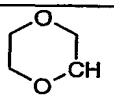
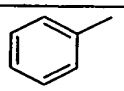
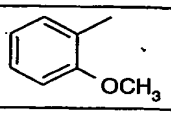
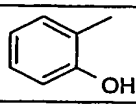
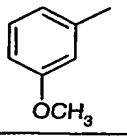
Comp. no.	R_4	R_1	R_2	X_1
A118	CF_3	CH_2CH_2		O
A119	CF_3	CH_2CH_2		O
A120	CF_3	CH_2CH_2		O
A121	CF_3	CH_2CH_2		O
A122	CF_3	CH_2CH_2		O
A123	CF_3	CH_2CH_2		O
A124	CF_3	CH_2CH_2		O
A125	CF_3	CH_2CH_2		O
A126	CF_3	CH_2CH_2		O
A127	CF_3	CH_2CH_2		O
A128	CF_3	CH_2CH_2		O
A129	CF_3	CH_2CH_2		O
A130	CF_3	CH_2CH_2		O
A131	CF_3	CH_2CH_2		O
A132	CF_3	CH_2CH_2		O

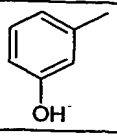
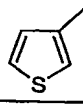
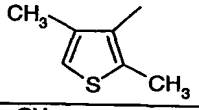
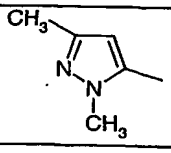
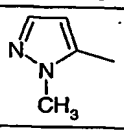
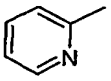
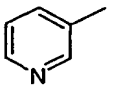
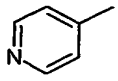
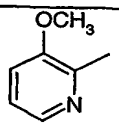
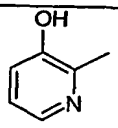
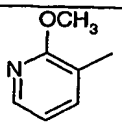
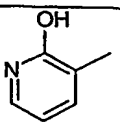
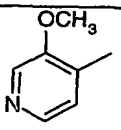
Comp. no.	R_4	R_1	R_2	X_1
A133	CF_3	CH_2CH_2		O
A134	CF_3	CH_2CH_2		O
A135	CF_3	CH_2CH_2		O
A136	CF_3	CH_2CH_2		O
A137	CF_3	CH_2CH_2		O
A138	CF_3	CH_2CH_2		O
A139	CF_3	CH_2CH_2		O
A140	CF_3	CH_2CH_2		O
A141	CF_3	CH_2CH_2		O
A142	CF_3	CH_2CH_2		O
A143	CF_3	CH_2CH_2		O
A144	CF_3	CH_2CH_2		O
A145	CF_3	CH_2CH_2		O

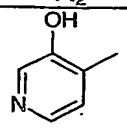
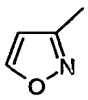
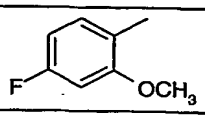
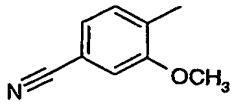
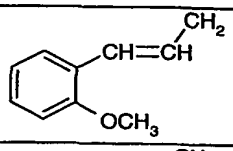
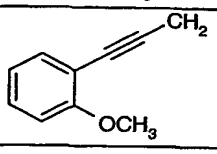
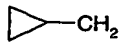
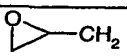
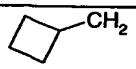
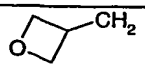
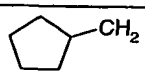
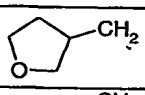
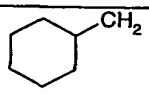
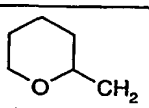
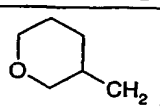
Comp. no.	R_4	R_1	R_2	X_1
A146	CF_3	CH_2CH_2		O
A147	CF_3	CH_2CH_2		O
A148	CF_3	CH_2CH_2		O
A149	CF_3	CH_2CH_2		O
A150	CF_3	CH_2CH_2		O
A151	CF_3	CH_2CH_2		O
A152	CF_3	CH_2CH_2		O
A153	CF_3	CH_2CH_2		O
A154	CF_3	CH_2CH_2		O
A155	CF_3	CH_2CH_2		O
A156	CF_3	CH_2CH_2		O
A157	CF_3	CH_2CH_2		O
A158	CF_3	CH_2CH_2		O
A159	CF_3	CH_2CH_2		O
A160	CF_3	CH_2CH_2		O
A161	CF_3	CH_2CH_2		O

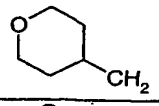
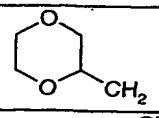
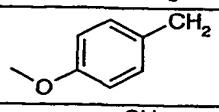
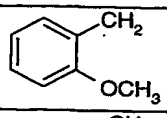
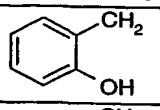
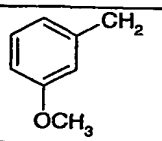
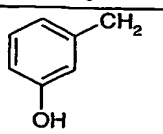
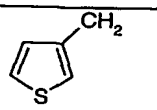
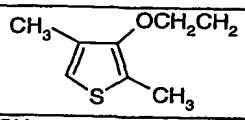
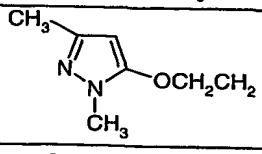
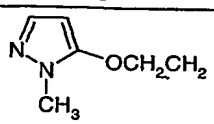
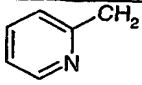
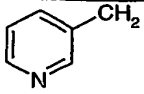
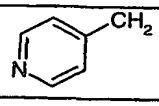
Comp. no.	R_4	R_1	R_2	X_1
A162	CF_3	CH_2CH_2		O
A163	CF_3	CH_2CH_2		O
A164	CF_3	CH_2CH_2		O
A165	CF_3	CH_2CH_2		O
A166	CF_3	CH_2CH_2		O
A167	CF_3	CH_2CH_2		O
A168	CF_3	CH_2CH_2		O
A169	CF_3	CH_2CH_2		O
A170	CF_3	CH_2CH_2		O
A171	CF_3	CH_2CH_2		O
A172	CF_3	CH_2CH_2		O
A173	CF_3	CH_2CH_2		O
A174	CF_3	CH_2CH_2		O

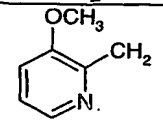
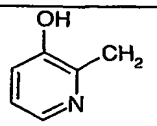
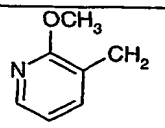
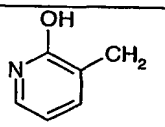
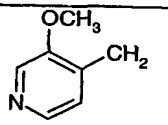
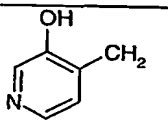
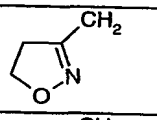
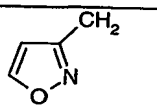
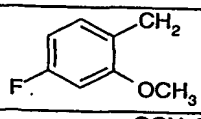
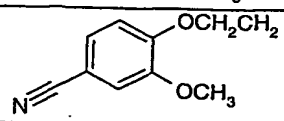
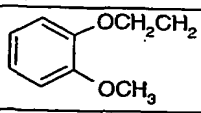
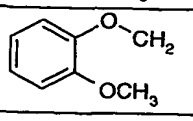
Comp. no.	R_4	R_1	R_2	X_1
A175	CF_3	CH_2CH_2		O
A176	CF_3	CH_2CH_2		O
A177	CF_3	CH_2CH_2		O
A178	CF_3	CH_2CH_2		O
A179	CF_3	CH_2CH_2		O
A180	CF_3	CH_2CH_2		O
A181	CF_3	CH_2CH_2		O
A182	CF_3	$CH(OCH_3)CH_2$	CH_3	O
A183	CF_3	$CH(OCH_3)CH_2$	CH_3CH_2	O
A184	CF_3	$CH(OCH_3)CH_2$	$(CH_3)_2CH$	O
A185	CF_3	$CH(OCH_3)CH_2$	$PhCH_2$	O
A186	CF_3	$CH(OCH_3)CH_2$	CH_3	S
A187	CF_3	$CH(OCH_3)CH_2$	CH_3	SO
A188	CF_3	$CH(OCH_3)CH_2$	CH_3	SO_2
A189	CF_3	$CH(OCH_3)CH_2$	$CH_3CH_2CH_2$	O
A190	CF_3	$CH(OCH_3)CH_2$	CH_3OCH_2	O
A191	CF_3	$CH(OCH_3)CH_2$	$CH_3CH_2OCH_2$	O
A192	CF_3	$CH(OCH_3)CH_2$	$CH_3OCH_2CH_2$	O
A193	CF_3	$CH(OCH_3)CH_2$	$CH_3CH_2OCH_2CH_2$	O
A194	CF_3	$CH(OCH_3)CH_2$	$CH_3OC(CH_3)_2CH_2$	O
A195	CF_3	$CH(OCH_3)CH_2$	$CH_3OCH(CH_3)CH_2$	O
A196	CF_3	$CH(OCH_3)CH_2$	$CH_3OCH_2CH(CH_3)$	O
A197	CF_3	$CH(OCH_3)CH_2$	$CH_3OCH_2C(CH_3)_2$	O
A198	CF_3	$CH(OCH_3)CH_2$	$CH_3OCH(CH_3)$	O

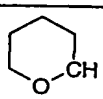
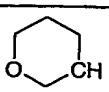
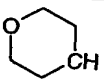
Comp. no.	R_4	R_1	R_2	X_1
A199	CF_3	$CH(OCH_3)CH_2$	$CH_3OC(CH_3)_2$	O
A200	CF_3	$CH(OCH_3)CH_2$	$HC\equiv CCH_2$	O
A201	CF_3	$CH(OCH_3)CH_2$	$H_2C=CHCH_2$	O
A202	CF_3	$CH(OCH_3)CH_2$	$CH_3C\equiv CCH_2$	O
A203	CF_3	$CH(OCH_3)CH_2$		O
A204	CF_3	$CH_2CH_2CH_2$		O
A205	CF_3	$CH(OCH_3)CH_2$		O
A206	CF_3	$CH(OCH_3)CH_2$		O
A207	CF_3	$CH(OCH_3)CH_2$		O
A208	CF_3	$CH(OCH_3)CH_2$		O
A209	CF_3	$CH(OCH_3)CH_2$		O
A210	CF_3	$CH(OCH_3)CH_2$		O
A211	CF_3	$CH(OCH_3)CH_2$		O
A212	CF_3	$CH(OCH_3)CH_2$		O
A213	CF_3	$CH(OCH_3)CH_2$		O
A214	CF_3	$CH(OCH_3)CH_2$		O
A215	CF_3	$CH(OCH_3)CH_2$		O
A216	CF_3	$CH(OCH_3)CH_2$		O
A217	CF_3	$CH(OCH_3)CH_2$		O

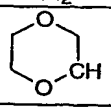
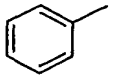
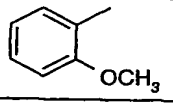
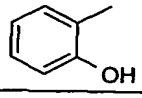
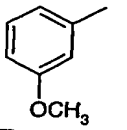
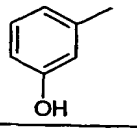
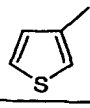
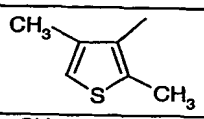
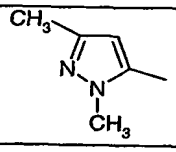
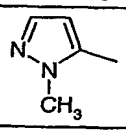
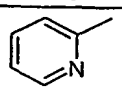
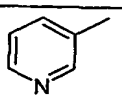
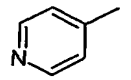
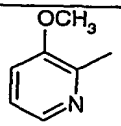
Comp. no.	R_4	R_1	R_2	X_1
A218	CF_3	$CH(OCH_3)CH_2$		O
A219	CF_3	$CH(OCH_3)CH_2$		O
A220	CF_3	$CH(OCH_3)CH_2$		O
A221	CF_3	$CH(OCH_3)CH_2$		O
A222	CF_3	$CH(OCH_3)CH_2$		O
A223	CF_3	$CH(OCH_3)CH_2$		O
A224	CF_3	$CH(OCH_3)CH_2$		O
A225	CF_3	$CH(OCH_3)CH_2$		O
A226	CF_3	$CH(OCH_3)CH_2$		O
A227	CF_3	$CH(OCH_3)CH_2$		O
A228	CF_3	$CH(OCH_3)CH_2$		O
A229	CF_3	$CH(OCH_3)CH_2$		O
A230	CF_3	$CH(OCH_3)CH_2$		O

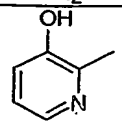
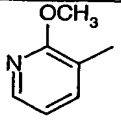
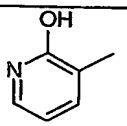
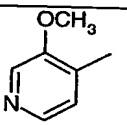
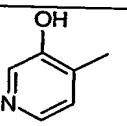
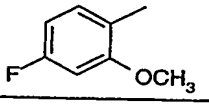
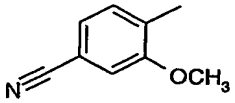
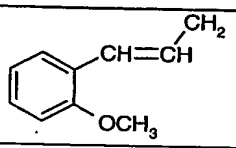
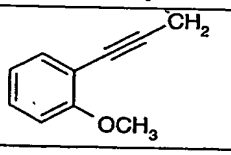
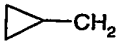
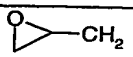
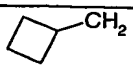
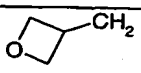
Comp. no.	R_4	R_1	R_2	X_1
A231	CF_3	$CH(OCH_3)CH_2$		O
A232	CF_3	$CH(OCH_3)CH_2$		O
A233	CF_3	$CH(OCH_3)CH_2$		O
A234	CF_3	$CH(OCH_3)CH_2$		O
A235	CF_3	$CH(OCH_3)CH_2$		O
A236	CF_3	$CH(OCH_3)CH_2$		O
A237	CF_3	$CH(OCH_3)CH_2$		O
A238	CF_3	$CH(OCH_3)CH_2$		O
A239	CF_3	$CH(OCH_3)CH_2$		O
A240	CF_3	$CH(OCH_3)CH_2$		O
A241	CF_3	$CH(OCH_3)CH_2$		O
A242	CF_3	$CH(OCH_3)CH_2$		O
A243	CF_3	$CH(OCH_3)CH_2$		O
A244	CF_3	$CH(OCH_3)CH_2$		O
A245	CF_3	$CH(OCH_3)CH_2$		O
A246	CF_3	$CH(OCH_3)CH_2$		O

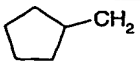
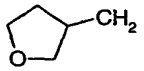
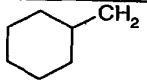
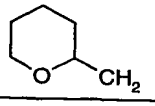
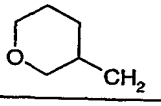
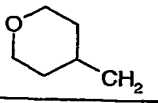
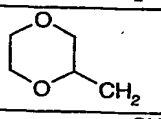
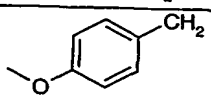
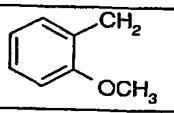
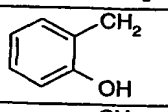
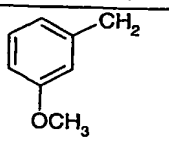
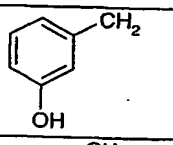
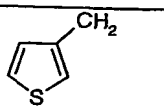
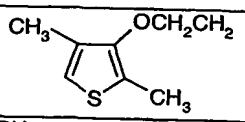
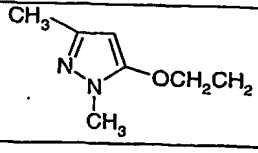
Comp. no.	R_4	R_1	R_2	X_1
A247	CF_3	$CH(OCH_3)CH_2$		O
A248	CF_3	$CH(OCH_3)CH_2$		O
A249	CF_3	$CH(OCH_3)CH_2$		O
A250	CF_3	$CH(OCH_3)CH_2$		O
A251	CF_3	$CH(OCH_3)CH_2$		O
A252	CF_3	$CH(OCH_3)CH_2$		O
A253	CF_3	$CH(OCH_3)CH_2$		O
A254	CF_3	$CH(OCH_3)CH_2$		O
A255	CF_3	$CH(OCH_3)CH_2$		O
A256	CF_3	$CH(OCH_3)CH_2$		O
A257	CF_3	$CH(OCH_3)CH_2$		O
A258	CF_3	$CH(OCH_3)CH_2$		O
A259	CF_3	$CH(OCH_3)CH_2$		O
A260	CF_3	$CH(OCH_3)CH_2$		O

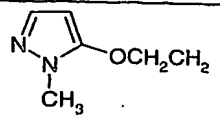
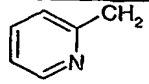
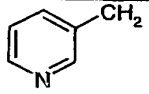
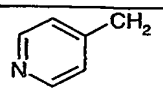
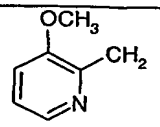
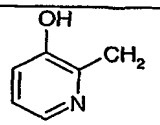
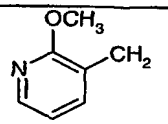
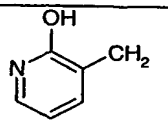
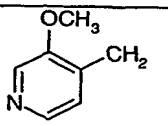
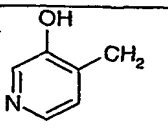
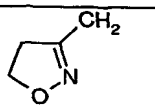
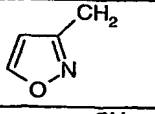
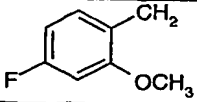
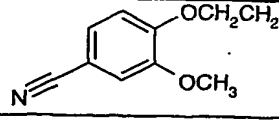
Comp. no.	R_4	R_1	R_2	X_1
A261	CF_3	$CH(OCH_3)CH_2$		O
A262	CF_3	$CH(OCH_3)CH_2$		O
A263	CF_3	$CH(OCH_3)CH_2$		O
A264	CF_3	$CH(OCH_3)CH_2$		O
A265	CF_3	$CH(OCH_3)CH_2$		O
A266	CF_3	$CH(OCH_3)CH_2$		O
A267	CF_3	$CH(OCH_3)CH_2$		O
A268	CF_3	$CH(OCH_3)CH_2$		O
A269	CF_3	$CH(OCH_3)CH_2$		O
A270	CF_3	$CH(OCH_3)CH_2$		O
A271	CF_3	$CH(OCH_3)CH_2$		O
A272	CF_3	$CH(OCH_3)CH_2$		O
A273	CF_3	$CH_2CH(OCH_3)CH_2$	CH_3	O
A274	CF_3	$CH_2CH(OCH_3)CH_2$	CH_3CH_2	O
A275	CF_3	$CH_2CH(OCH_3)CH_2$	$(CH_3)_2CH$	O
A276	CF_3	$CH_2CH(OCH_3)CH_2$	$PhCH_2$	O

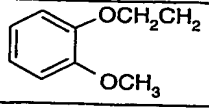
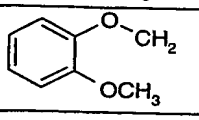
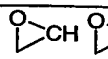
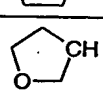
Comp. no.	R_4	R_1	R_2	X_1
A277	CF_3	$CH_2CH(OCH_3)CH_2$	CH_3	S
A278	CF_3	$CH_2CH(OCH_3)CH_2$	CH_3	SO
A279	CF_3	$CH_2CH(OCH_3)CH_2$	CH_3	SO_2
A280	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3CH_2CH_2$	O
A281	CF_3	$CH_2CH(OCH_3)CH_2$	CH_3OCH_2	O
A282	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3CH_2OCH_2$	O
A283	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OCH_2CH_2$	O
A284	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3CH_2OCH_2CH_2$	O
A285	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OC(CH_3)_2CH_2$	O
A286	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OCH(CH_3)CH_2$	O
A287	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OCH_2CH(CH_3)$	O
A288	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OCH_2C(CH_3)_2$	O
A289	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OCH(CH_3)$	O
A290	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3OC(CH_3)_2$	O
A291	CF_3	$CH_2CH(OCH_3)CH_2$	$HC\equiv CCH_2$	O
A292	CF_3	$CH_2CH(OCH_3)CH_2$	$H_2C=CHCH_2$	O
A293	CF_3	$CH_2CH(OCH_3)CH_2$	$CH_3C\equiv CCH_2$	O
A294	CF_3	$CH_2CH(OCH_3)CH_2$		O
A295	CF_3	$CH_2CH_2CH_2$		O
A296	CF_3	$CH_2CH(OCH_3)CH_2$		O
A297	CF_3	$CH_2CH(OCH_3)CH_2$		O
A298	CF_3	$CH_2CH(OCH_3)CH_2$		O
A299	CF_3	$CH_2CH(OCH_3)CH_2$		O
A300	CF_3	$CH_2CH(OCH_3)CH_2$		O
A301	CF_3	$CH_2CH(OCH_3)CH_2$		O
A302	CF_3	$CH_2CH(OCH_3)CH_2$		O
A303	CF_3	$CH_2CH(OCH_3)CH_2$		O

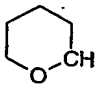
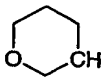
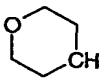
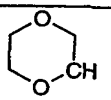
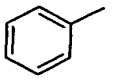
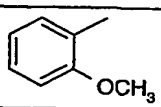
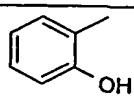
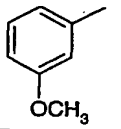
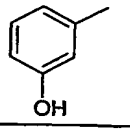
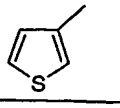
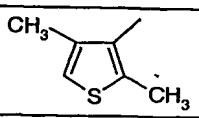
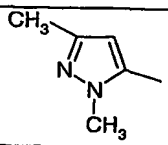
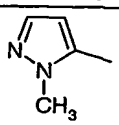
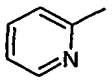
Comp. no.	R_4	R_1	R_2	X_1
A304	CF_3	$CH_2CH(OCH_3)CH_2$		O
A305	CF_3	$CH_2CH(OCH_3)CH_2$		O
A306	CF_3	$CH_2CH(OCH_3)CH_2$		O
A307	CF_3	$CH_2CH(OCH_3)CH_2$		O
A308	CF_3	$CH_2CH(OCH_3)CH_2$		O
A309	CF_3	$CH_2CH(OCH_3)CH_2$		O
A310	CF_3	$CH_2CH(OCH_3)CH_2$		O
A311	CF_3	$CH_2CH(OCH_3)CH_2$		O
A312	CF_3	$CH_2CH(OCH_3)CH_2$		O
A313	CF_3	$CH_2CH(OCH_3)CH_2$		O
A314	CF_3	$CH_2CH(OCH_3)CH_2$		O
A315	CF_3	$CH_2CH(OCH_3)CH_2$		O
A316	CF_3	$CH_2CH(OCH_3)CH_2$		O
A317	CF_3	$CH_2CH(OCH_3)CH_2$		O

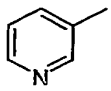
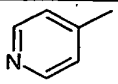
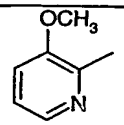
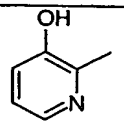
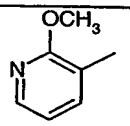
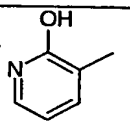
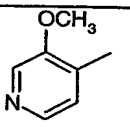
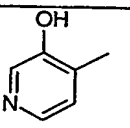
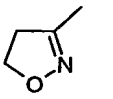
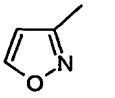
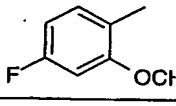
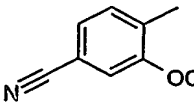
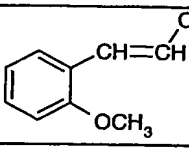
Comp. no.	R_4	R_1	R_2	X_1
A318	CF_3	$CH_2CH(OCH_3)CH_2$		O
A319	CF_3	$CH_2CH(OCH_3)CH_2$		O
A320	CF_3	$CH_2CH(OCH_3)CH_2$		O
A321	CF_3	$CH_2CH(OCH_3)CH_2$		O
A322	CF_3	$CH_2CH(OCH_3)CH_2$		O
A323	CF_3	$CH_2CH(OCH_3)CH_2$		O
A324	CF_3	$CH_2CH(OCH_3)CH_2$		O
A325	CF_3	$CH_2CH(OCH_3)CH_2$		O
A326	CF_3	$CH_2CH(OCH_3)CH_2$		O
A327	CF_3	$CH_2CH(OCH_3)CH_2$		O
A328	CF_3	$CH_2CH(OCH_3)CH_2$		O
A329	CF_3	$CH_2CH(OCH_3)CH_2$		O
A330	CF_3	$CH_2CH(OCH_3)CH_2$		O
A331	CF_3	$CH_2CH(OCH_3)CH_2$		O
A332	CF_3	$CH_2CH(OCH_3)CH_2$		O

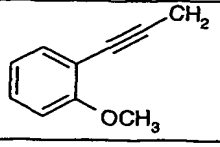
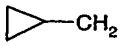
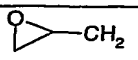
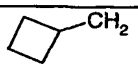
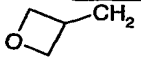
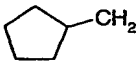
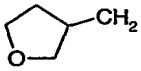
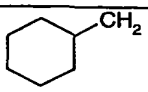
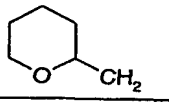
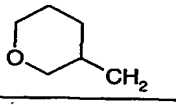
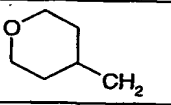
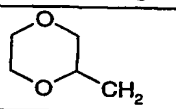
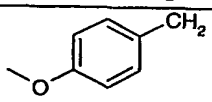
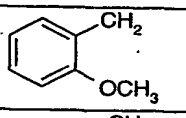
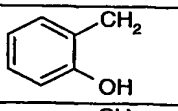
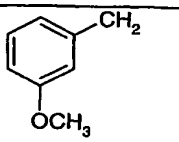
Comp. no.	R_4	R_1	R_2	X_1
A333	CF_3	$CH_2CH(OCH_3)CH_2$		O
A334	CF_3	$CH_2CH(OCH_3)CH_2$		O
A335	CF_3	$CH_2CH(OCH_3)CH_2$		O
A336	CF_3	$CH_2CH(OCH_3)CH_2$		O
A337	CF_3	$CH_2CH(OCH_3)CH_2$		O
A338	CF_3	$CH_2CH(OCH_3)CH_2$		O
A339	CF_3	$CH_2CH(OCH_3)CH_2$		O
A340	CF_3	$CH_2CH(OCH_3)CH_2$		O
A341	CF_3	$CH_2CH(OCH_3)CH_2$		O
A342	CF_3	$CH_2CH(OCH_3)CH_2$		O
A343	CF_3	$CH_2CH(OCH_3)CH_2$		O
A344	CF_3	$CH_2CH(OCH_3)CH_2$		O
A345	CF_3	$CH_2CH(OCH_3)CH_2$		O
A346	CF_3	$CH_2CH(OCH_3)CH_2$		O
A347	CF_3	$CH_2CH(OCH_3)CH_2$		O

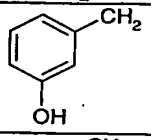
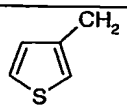
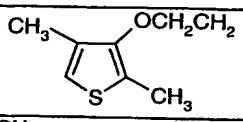
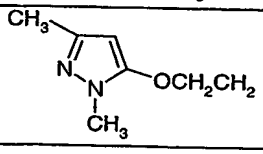
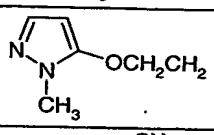
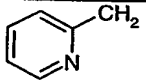
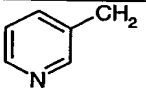
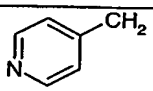
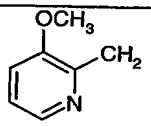
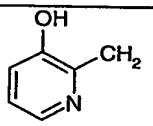
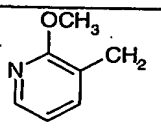
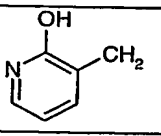
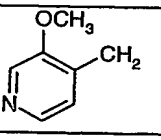
Comp. no.	R_4	R_1	R_2	X_1
A348	CF_3	$CH_2CH(OCH_3)CH_2$		O
A349	CF_3	$CH_2CH(OCH_3)CH_2$		O
A350	CF_3	$CH_2CH(OCH_3)CH_2$		O
A351	CF_3	$CH_2CH(OCH_3)CH_2$		O
A352	CF_3	$CH_2CH(OCH_3)CH_2$		O
A353	CF_3	$CH_2CH(OCH_3)CH_2$		O
A354	CF_3	$CH_2CH(OCH_3)CH_2$		O
A355	CF_3	$CH_2CH(OCH_3)CH_2$		O
A356	CF_3	$CH_2CH(OCH_3)CH_2$		O
A357	CF_3	$CH_2CH(OCH_3)CH_2$		O
A358	CF_3	$CH_2CH(OCH_3)CH_2$		O
A359	CF_3	$CH_2CH(OCH_3)CH_2$		O
A360	CF_3	$CH_2CH(OCH_3)CH_2$		O
A361	CF_3	$CH_2CH(OCH_3)CH_2$		O

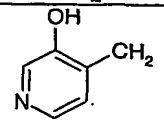
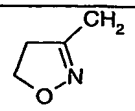
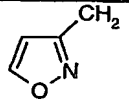
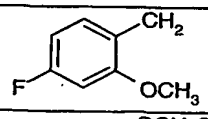
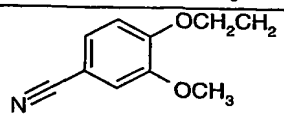
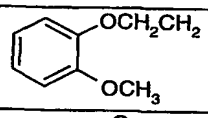
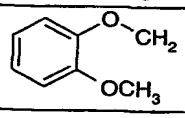
Comp. no.	R_4	R_1	R_2	X_1
A362	CF_3	$CH_2CH(OCH_3)CH_2$		O
A363	CF_3	$CH_2CH(OCH_3)CH_2$		O
A364	CF_3	$CH=CHCH_2$	CH_3	O
A365	CF_3	$CH=CHCH_2$	CH_3CH_2	O
A366	CF_3	$CH=CHCH_2$	$(CH_3)_2CH$	O
A367	CF_3	$CH=CHCH_2$	$PhCH_2$	O
A368	CF_3	$CH=CHCH_2$	CH_3	S
A369	CF_3	$CH=CHCH_2$	CH_3	SO
A370	CF_3	$CH=CHCH_2$	CH_3	SO_2
A371	CF_3	$CH=CHCH_2$	$CH_3CH_2CH_2$	O
A372	CF_3	$CH=CHCH_2$	CH_3OCH_2	O
A373	CF_3	$CH=CHCH_2$	$CH_3CH_2OCH_2$	O
A374	CF_3	$CH=CHCH_2$	$CH_3OCH_2CH_2$	O
A375	CF_3	$CH=CHCH_2$	$CH_3CH_2OCH_2CH_2$	O
A376	CF_3	$CH=CHCH_2$	$CH_3OC(CH_3)_2CH_2$	O
A377	CF_3	$CH=CHCH_2$	$CH_3OCH(CH_3)CH_2$	O
A378	CF_3	$CH=CHCH_2$	$CH_3OCH_2CH(CH_3)$	O
A379	CF_3	$CH=CHCH_2$	$CH_3OCH_2C(CH_3)_2$	O
A380	CF_3	$CH=CHCH_2$	$CH_3OCH(CH_3)$	O
A381	CF_3	$CH=CHCH_2$	$CH_3OC(CH_3)_2$	O
A382	CF_3	$CH=CHCH_2$	$HC\equiv CCH_2$	O
A383	CF_3	$CH=CHCH_2$	$H_2C=CHCH_2$	O
A384	CF_3	$CH=CHCH_2$	$CH_3C\equiv CCH_2$	O
A385	CF_3	$CH=CHCH_2$		O
A386	CF_3	$CH=CHCH_2$		O
A387	CF_3	$CH=CHCH_2$		O
A388	CF_3	$CH=CHCH_2$		O
A389	CF_3	$CH=CHCH_2$		O
A390	CF_3	$CH=CHCH_2$		O

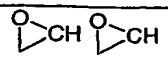
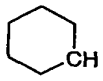
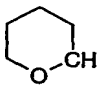
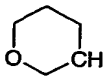
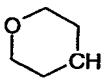
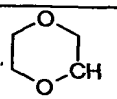
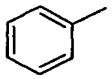
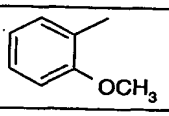
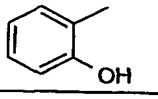
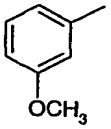
Comp. no.	R_4	R_1	R_2	X_1
A391	CF_3	$CH=CHCH_2$		O
A392	CF_3	$CH=CHCH_2$		O
A393	CF_3	$CH=CHCH_2$		O
A394	CF_3	$CH=CHCH_2$		O
A395	CF_3	$CH=CHCH_2$		O
A396	CF_3	$CH=CHCH_2$		O
A397	CF_3	$CH=CHCH_2$		O
A398	CF_3	$CH=CHCH_2$		O
A399	CF_3	$CH=CHCH_2$		O
A400	CF_3	$CH=CHCH_2$		O
A401	CF_3	$CH=CHCH_2$		O
A402	CF_3	$CH=CHCH_2$		O
A403	CF_3	$CH=CHCH_2$		O
A404	CF_3	$CH=CHCH_2$		O
A405	CF_3	$CH=CHCH_2$		O

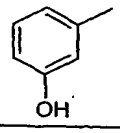
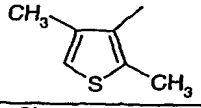
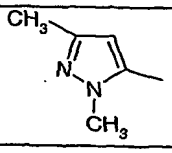
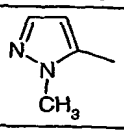
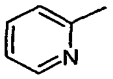
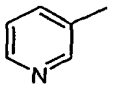
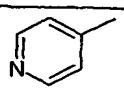
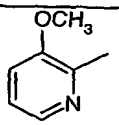
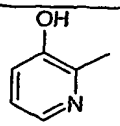
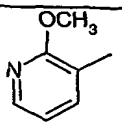
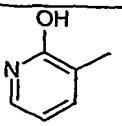
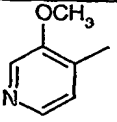
Comp. no.	R_4	R_1	R_2	X_1
A406	CF_3	$CH=CHCH_2$		O
A407	CF_3	$CH=CHCH_2$		O
A408	CF_3	$CH=CHCH_2$		O
A409	CF_3	$CH=CHCH_2$		O
A410	CF_3	$CH=CHCH_2$		O
A411	CF_3	$CH=CHCH_2$		O
A412	CF_3	$CH=CHCH_2$		O
A413	CF_3	$CH=CHCH_2$		O
A414	CF_3	$CH=CHCH_2$		O
A415	CF_3	$CH=CHCH_2$		O
A416	CF_3	$CH=CHCH_2$		O
A417	CF_3	$CH=CHCH_2$		O
A418	CF_3	$CH=CHCH_2$		O

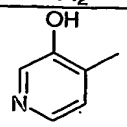
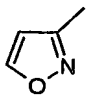
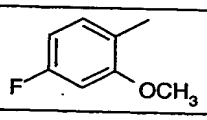
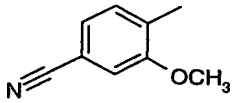
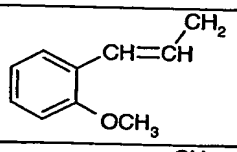
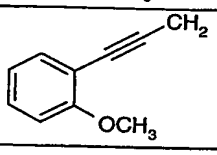
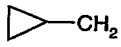
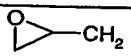
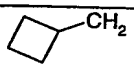
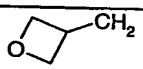
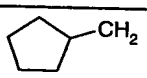
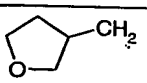
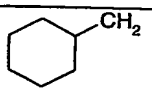
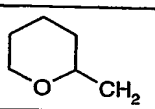
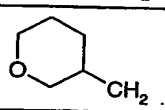
Comp. no.	R_4	R_1	R_2	X_1
A419	CF_3	$CH=CHCH_2$		O
A420	CF_3	$CH=CHCH_2$		O
A421	CF_3	$CH=CHCH_2$		O
A422	CF_3	$CH=CHCH_2$		O
A423	CF_3	$CH=CHCH_2$		O
A424	CF_3	$CH=CHCH_2$		O
A425	CF_3	$CH=CHCH_2$		O
A426	CF_3	$CH=CHCH_2$		O
A427	CF_3	$CH=CHCH_2$		O
A428	CF_3	$CH=CHCH_2$		O
A429	CF_3	$CH=CHCH_2$		O
A430	CF_3	$CH=CHCH_2$		O
A431	CF_3	$CH=CHCH_2$		O
A432	CF_3	$CH=CHCH_2$		O
A433	CF_3	$CH=CHCH_2$		O
A434	CF_3	$CH=CHCH_2$		O

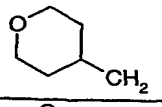
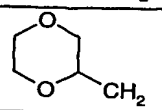
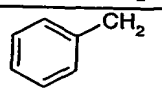
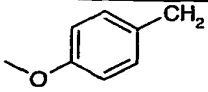
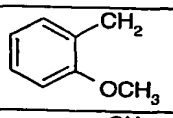
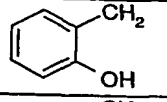
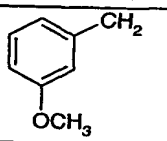
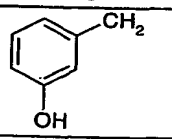
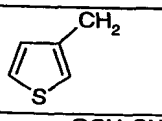
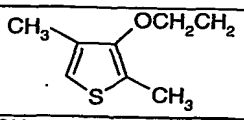
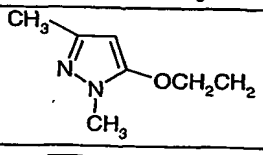
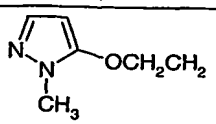
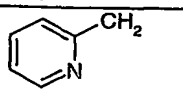
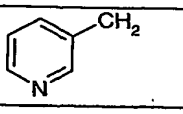
Comp. no.	R_4	R_1	R_2	X_1
A435	CF_3	$CH=CHCH_2$		O
A436	CF_3	$CH=CHCH_2$		O
A437	CF_3	$CH=CHCH_2$		O
A438	CF_3	$CH=CHCH_2$		O
A439	CF_3	$CH=CHCH_2$		O
A440	CF_3	$CH=CHCH_2$		O
A441	CF_3	$CH=CHCH_2$		O
A442	CF_3	$CH=CHCH_2$		O
A443	CF_3	$CH=CHCH_2$		O
A444	CF_3	$CH=CHCH_2$		O
A445	CF_3	$CH=CHCH_2$		O
A446	CF_3	$CH=CHCH_2$		O
A447	CF_3	$CH=CHCH_2$		O

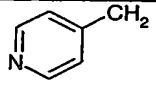
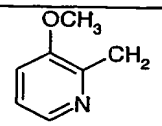
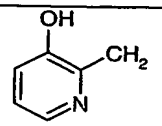
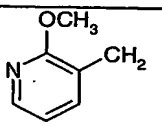
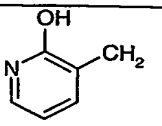
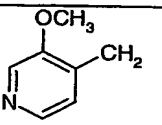
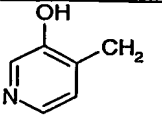
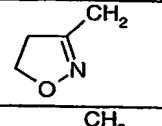
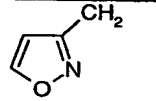
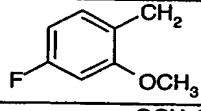
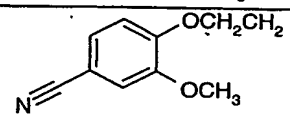
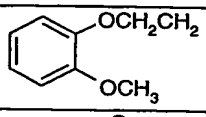
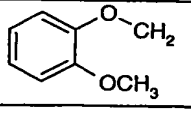
Comp. no.	R_4	R_1	R_2	X_1
A448	CF_3	$CH=CHCH_2$		O
A449	CF_3	$CH=CHCH_2$		O
A450	CF_3	$CH=CHCH_2$		O
A451	CF_3	$CH=CHCH_2$		O
A452	CF_3	$CH=CHCH_2$		O
A453	CF_3	$CH=CHCH_2$		O
A454	CF_3	$CH=CHCH_2$		O
A455	CF_3	$C\equiv CCH_2$	CH_3	O
A456	CF_3	$C\equiv CCH_2$	CH_3CH_2	O
A457	CF_3	$C\equiv CCH_2$	$(CH_3)_2CH$	O
A458	CF_3	$C\equiv CCH_2$	$PhCH_2$	O
A459	CF_3	$C\equiv CCH_2$	CH_3	S
A460	CF_3	$C\equiv CCH_2$	CH_3	SO
A461	CF_3	$C\equiv CCH_2$	CH_3	SO_2
A462	CF_3	$C\equiv CCH_2$	$CH_3CH_2CH_2$	O
A463	CF_3	$C\equiv CCH_2$	CH_3OCH_2	O
A464	CF_3	$C\equiv CCH_2$	$CH_3CH_2OCH_2$	O
A465	CF_3	$C\equiv CCH_2$	$CH_3OCH_2CH_2$	O
A466	CF_3	$C\equiv CCH_2$	$CH_3CH_2OCH_2CH_2$	O
A467	CF_3	$C\equiv CCH_2$	$CH_3OC(CH_3)_2CH_2$	O
A468	CF_3	$C\equiv CCH_2$	$CH_3OCH(CH_3)CH_2$	O
A469	CF_3	$C\equiv CCH_2$	$CH_3OCH_2CH(CH_3)$	O
A470	CF_3	$C\equiv CCH_2$	$CH_3OCH_2C(CH_3)_2$	O
A471	CF_3	$C\equiv CCH_2$	$CH_3OCH(CH_3)$	O

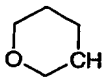
Comp. no.	R_4	R_1	R_2	X_1
A472	CF_3	$C\equiv CCH_2$	$CH_3OC(CH_3)_2$	O
A473	CF_3	$C\equiv CCH_2$	$HC\equiv CCH_2$	O
A474	CF_3	$C\equiv CCH_2$	$H_2C=CHCH_2$	O
A475	CF_3	$C\equiv CCH_2$	$CH_3C\equiv CCH_2$	O
A476	CF_3	$C\equiv CCH_2$		O
A477	CF_3	$C\equiv CCH_2$		O
A478	CF_3	$C\equiv CCH_2$		O
A479	CF_3	$C\equiv CCH_2$		O
A480	CF_3	$C\equiv CCH_2$		O
A481	CF_3	$C\equiv CCH_2$		O
A482	CF_3	$C\equiv CCH_2$		O
A483	CF_3	$C\equiv CCH_2$		O
A484	CF_3	$C\equiv CCH_2$		O
A485	CF_3	$C\equiv CCH_2$		O
A486	CF_3	$C\equiv CCH_2$		O
A487	CF_3	$C\equiv CCH_2$		O
A488	CF_3	$C\equiv CCH_2$		O
A489	CF_3	$C\equiv CCH_2$		O
A490	CF_3	$C\equiv CCH_2$		O

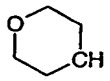
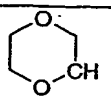
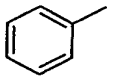
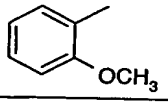
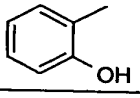
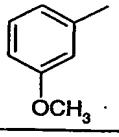
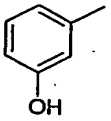
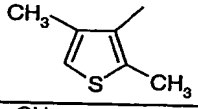
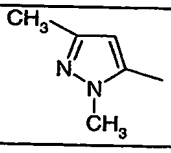
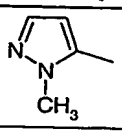
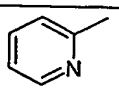
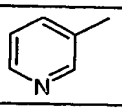
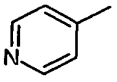
Comp. no.	R_4	R_1	R_2	X_1
A491	CF_3	$C\equiv CCH_2$		O
A492	CF_3	$C\equiv CCH_2$		O
A493	CF_3	$C\equiv CCH_2$		O
A494	CF_3	$C\equiv CCH_2$		O
A495	CF_3	$C\equiv CCH_2$		O
A496	CF_3	$C\equiv CCH_2$		O
A497	CF_3	$C\equiv CCH_2$		O
A498	CF_3	$C\equiv CCH_2$		O
A499	CF_3	$C\equiv CCH_2$		O
A500	CF_3	$C\equiv CCH_2$		O
A501	CF_3	$C\equiv CCH_2$		O
A502	CF_3	$C\equiv CCH_2$		O
A503	CF_3	$C\equiv CCH_2$		O

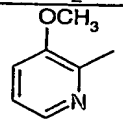
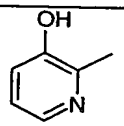
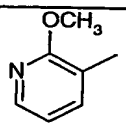
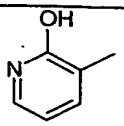
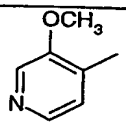
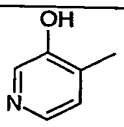
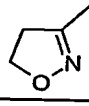
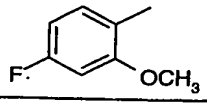
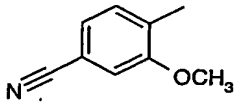
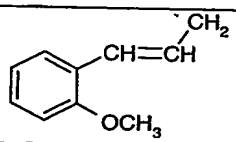
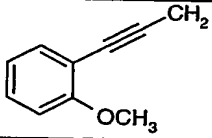
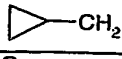
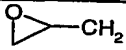
Comp. no.	R_4	R_1	R_2	X_1
A504	CF_3	$C\equiv CCH_2$		O
A505	CF_3	$C\equiv CCH_2$		O
A506	CF_3	$C\equiv CCH_2$		O
A507	CF_3	$C\equiv CCH_2$		O
A508	CF_3	$C\equiv CCH_2$		O
A509	CF_3	$C\equiv CCH_2$		O
A510	CF_3	$C\equiv CCH_2$		O
A511	CF_3	$C\equiv CCH_2$		O
A512	CF_3	$C\equiv CCH_2$		O
A513	CF_3	$C\equiv CCH_2$		O
A514	CF_3	$C\equiv CCH_2$		O
A515	CF_3	$C\equiv CCH_2$		O
A516	CF_3	$C\equiv CCH_2$		O
A517	CF_3	$C\equiv CCH_2$		O
A518	CF_3	$C\equiv CCH_2$		O
A519	CF_3	$C\equiv CCH_2$		O

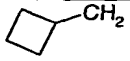
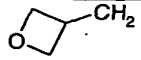
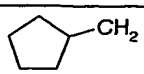
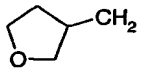
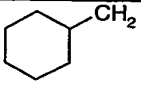
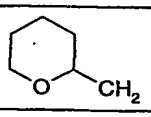
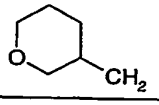
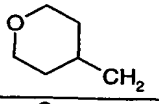
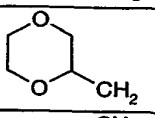
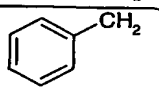
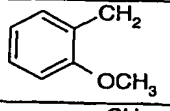
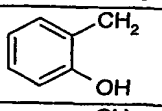
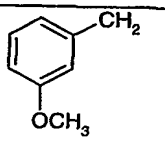
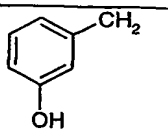
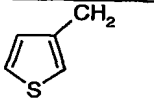
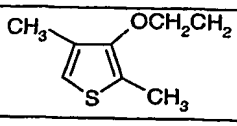
Comp. no.	R_4	R_1	R_2	X_1
A520	CF_3	$C\equiv CCH_2$		O
A521	CF_3	$C\equiv CCH_2$		O
A521a	CF_3	$C\equiv CCH_2$		O
A522	CF_3	$C\equiv CCH_2$		O
A523	CF_3	$C\equiv CCH_2$		O
A524	CF_3	$C\equiv CCH_2$		O
A525	CF_3	$C\equiv CCH_2$		O
A526	CF_3	$C\equiv CCH_2$		O
A527	CF_3	$C\equiv CCH_2$		O
A528	CF_3	$C\equiv CCH_2$		O
A529	CF_3	$C\equiv CCH_2$		O
A530	CF_3	$C\equiv CCH_2$		O
A531	CF_3	$C\equiv CCH_2$		O
A532	CF_3	$C\equiv CCH_2$		O

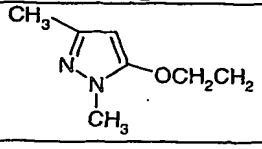
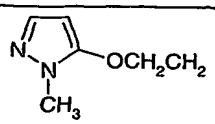
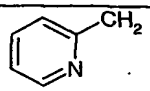
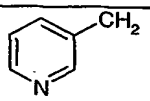
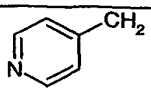
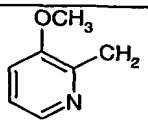
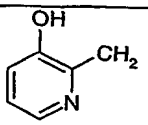
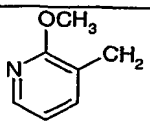
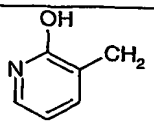
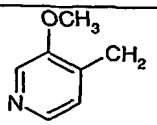
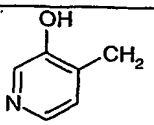
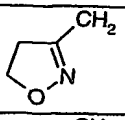
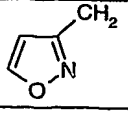
Comp. no.	R_4	R_1	R_2	X_1
A533	CF_3	$C\equiv CCH_2$		O
A534	CF_3	$C\equiv CCH_2$		O
A535	CF_3	$C\equiv CCH_2$		O
A536	CF_3	$C\equiv CCH_2$		O
A537	CF_3	$C\equiv CCH_2$		O
A538	CF_3	$C\equiv CCH_2$		O
A539	CF_3	$C\equiv CCH_2$		O
A540	CF_3	$C\equiv CCH_2$		O
A541	CF_3	$C\equiv CCH_2$		O
A542	CF_3	$C\equiv CCH_2$		O
A543	CF_3	$C\equiv CCH_2$		O
A544	CF_3	$C\equiv CCH_2$		O
A545	CF_3	$C\equiv CCH_2$		O
A546	CF_2Cl	CH_2	CH_3	O
A547	CF_2Cl	CH_2	CH_3CH_2	O

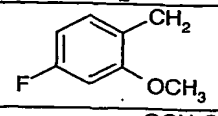
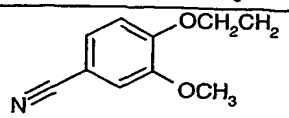
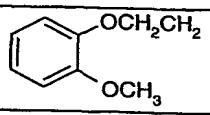
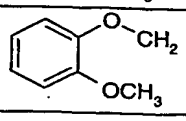
Comp. no.	R_4	R_1	R_2	X_1
A548	CF_2Cl	CH_2	$(CH_3)_2CH$	O
A549	CF_2Cl	CH_2	$PhCH_2$	O
A550	CF_2Cl	CH_2	CH_3	S
A551	CF_2Cl	CH_2	CH_3	SO
A552	CF_2Cl	CH_2	CH_3	SO_2
A553	CF_2Cl	CH_2	$CH_3CH_2CH_2$	O
A554	CF_2Cl	CH_2	CH_3OCH_2	O
A555	CF_2Cl	CH_2	$CH_3CH_2OCH_2$	O
A556	CF_2Cl	CH_2	$CH_3OCH_2CH_2$	O
A557	CF_2Cl	CH_2	$CH_3CH_2OCH_2CH_2$	O
A558	CF_2Cl	CH_2	$CH_3OC(CH_3)_2CH_2$	O
A559	CF_2Cl	CH_2	$CH_3OCH(CH_3)CH_2$	O
A560	CF_2Cl	CH_2	$CH_3OCH_2CH(CH_3)$	O
A561	CF_2Cl	CH_2	$CH_3OCH_2C(CH_3)_2$	O
A562	CF_2Cl	CH_2	$CH_3OCH(CH_3)$	O
A563	CF_2Cl	CH_2	$CH_3OC(CH_3)_2$	O
A564	CF_2Cl	CH_2	$HC\equiv CCH_2$	O
A565	CF_2Cl	CH_2	$H_2C=CHCH_2$	O
A566	CF_2Cl	CH_2	$CH_3C\equiv CCH_2$	O
A567	CF_2Cl	CH_2		O
A568	CF_2Cl	CH_2		O
A569	CF_2Cl	CH_2		O
A570	CF_2Cl	CH_2		O
A571	CF_2Cl	CH_2		O
A572	CF_2Cl	CH_2		O
A573	CF_2Cl	CH_2		O
A574	CF_2Cl	CH_2		O
A575	CF_2Cl	CH_2		O

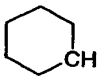
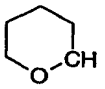
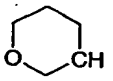
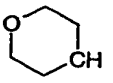
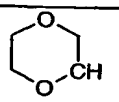
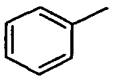
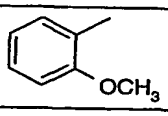
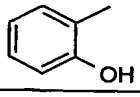
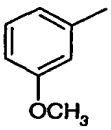
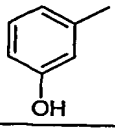
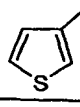
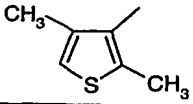
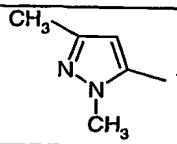
Comp. no.	R_4	R_1	R_2	X_1
A576	CF_2Cl	CH_2		O
A577	CF_2Cl	CH_2		O
A578	CF_2Cl	CH_2		O
A579	CF_2Cl	CH_2		O
A580	CF_2Cl	CH_2		O
A581	CF_2Cl	CH_2		O
A582	CF_2Cl	CH_2		O
A583	CF_2Cl	CH_2		O
A584	CF_2Cl	CH_2		O
A585	CF_2Cl	CH_2		O
A586	CF_2Cl	CH_2		O
A587	CF_2Cl	CH_2		O
A588	CF_2Cl	CH_2		O
A589	CF_2Cl	CH_2		O

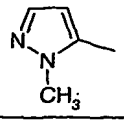
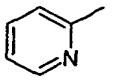
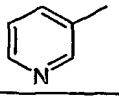
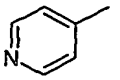
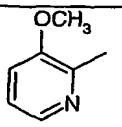
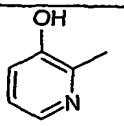
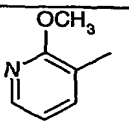
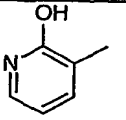
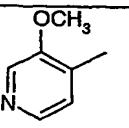
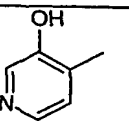
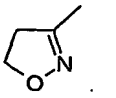
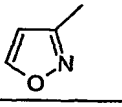
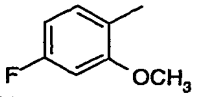
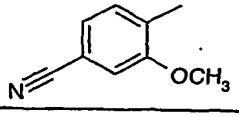
Comp. no.	R_4	R_1	R_2	X_1
A590	CF_2Cl	CH_2		O
A591	CF_2Cl	CH_2		O
A592	CF_2Cl	CH_2		O
A593	CF_2Cl	CH_2		O
A594	CF_2Cl	CH_2		O
A595	CF_2Cl	CH_2		O
A596	CF_2Cl	CH_2		O
A597	CF_2Cl	CH_2		O
A598	CF_2Cl	CH_2		O
A599	CF_2Cl	CH_2		O
A600	CF_2Cl	CH_2		O
A601	CF_2Cl	CH_2		O
A602	CF_2Cl	CH_2		O
A603	CF_2Cl	CH_2		O

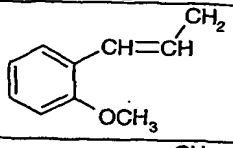
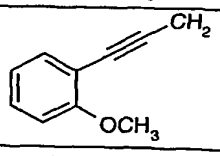
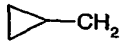
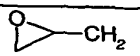
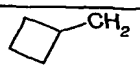
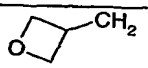
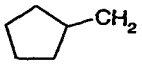
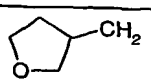
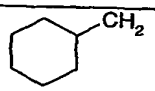
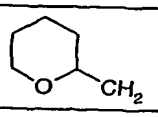
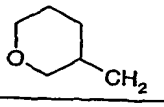
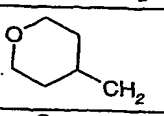
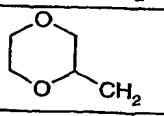
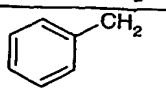
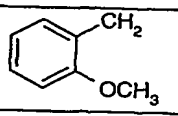
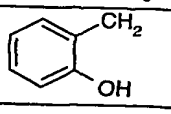
Comp. no.	R_4	R_1	R_2	X_1
A604	CF_2Cl	CH_2		O
A605	CF_2Cl	CH_2		O
A606	CF_2Cl	CH_2		O
A607	CF_2Cl	CH_2		O
A608	CF_2Cl	CH_2		O
A609	CF_2Cl	CH_2		O
A610	CF_2Cl	CH_2		O
A611	CF_2Cl	CH_2		O
A612	CF_2Cl	CH_2		O
A613	CF_2Cl	CH_2		O
A614	CF_2Cl	CH_2		O
A615	CF_2Cl	CH_2		O
A616	CF_2Cl	CH_2		O
A617	CF_2Cl	CH_2		O
A618	CF_2Cl	CH_2		O
A619	CF_2Cl	CH_2		O

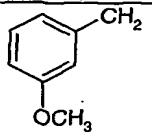
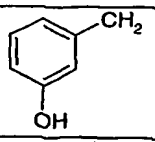
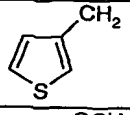
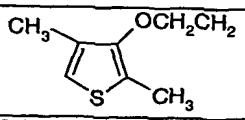
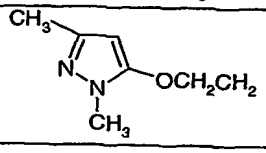
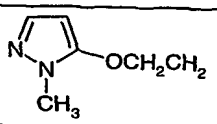
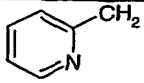
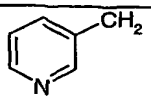
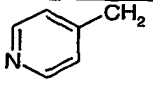
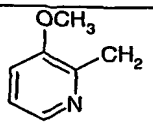
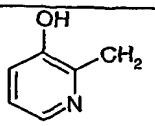
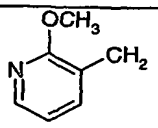
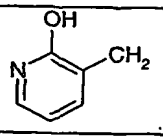
Comp. no.	R_4	R_1	R_2	X_1
A620	CF_2Cl	CH_2		O
A621	CF_2Cl	CH_2		O
A622	CF_2Cl	CH_2		O
A623	CF_2Cl	CH_2		O
A624	CF_2Cl	CH_2		O
A625	CF_2Cl	CH_2		O
A626	CF_2Cl	CH_2		O
A627	CF_2Cl	CH_2		O
A628	CF_2Cl	CH_2		O
A629	CF_2Cl	CH_2		O
A630	CF_2Cl	CH_2		O
A631	CF_2Cl	CH_2		O
A632	CF_2Cl	CH_2		O

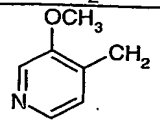
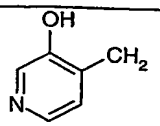
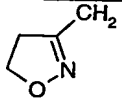
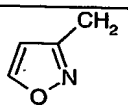
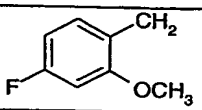
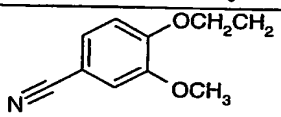
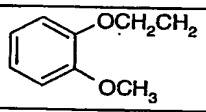
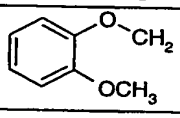
Comp. no.	R_4	R_1	R_2	X_1
A633	CF_2Cl	CH_2		O
A634	CF_2Cl	CH_2		O
A635	CF_2Cl	CH_2		O
A636	CF_2Cl	CH_2		O
A637	CF_2Cl	CH_2	CH_3	O
A638	CF_2Cl	CH_2	CH_2CH_3	O
A639	CF_2Cl	CH_2	$(CH_3)_2CH$	O
A640	CF_2Cl	CH_2	$PhCH_2$	O
A641	CF_2Cl	CH_2	CH_3	S
A642	CF_2Cl	CH_2	CH_3	O
A643	CF_2Cl	CH_2	CH_3	O
A644	CF_2Cl	CH_2	CH_3OCH_2	O
A645	CF_2Cl	CH_2	$CH_3CH_2OCH_2$	O
A646	CF_2Cl	CH_2	$CH_3OCH_2CH_2$	O
A647	CF_2Cl	CH_2	$CH_3CH_2OCH_2CH_2$	O
A648	CF_2Cl	CH_2	$CH_3OC(CH_3)_2CH_2$	O
A649	CF_2Cl	CH_2	$CH_3OCH(CH_3)CH_2$	O
A650	CF_2Cl	CH_2	$CH_3OCH_2CH(CH_3)$	O
A651	CF_2Cl	CH_2	$CH_3OCH_2C(CH_3)_2$	O
A652	CF_2Cl	CH_2	$CH_3OCH(CH_3)$	O
A653	CF_2Cl	CH_2	$CH_3OC(CH_3)_2$	O
A654	CF_2Cl	CH_2	$HC\equiv CCH_2$	O
A655	CF_2Cl	CH_2	$H_2C=CHCH_2$	O
A656	CF_2Cl	CH_2	$CH_3C\equiv CCH_2$	O
A657	CF_2Cl	CH_2		O
A658	CF_2Cl	CH_2		O
A659	CF_2Cl	CH_2		O

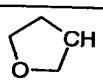
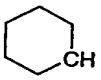
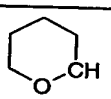
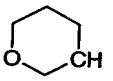
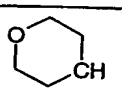
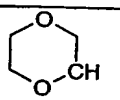
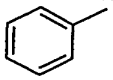
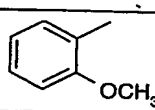
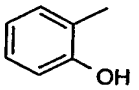
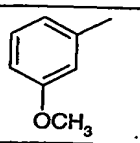
Comp. no.	R_4	R_1	R_2	X_1
A660	CF_2Cl	CH_2		O
A661	CF_2Cl	CH_2		O
A662	CF_2Cl	CH_2		O
A663	CF_2Cl	CH_2		O
A664	CF_2Cl	CH_2		O
A665	CF_2Cl	CH_2		O
A666	CF_2Cl	CH_2		O
A667	CF_2Cl	CH_2		O
A668	CF_2Cl	CH_2		O
A669	CF_2Cl	CH_2		O
A670	CF_2Cl	CH_2		O
A671	CF_2Cl	CH_2		O
A672	CF_2Cl	CH_2		O
A673	CF_2Cl	CH_2		O
A674	CF_2Cl	CH_2		O
A675	CF_2Cl	CH_2		O

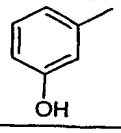
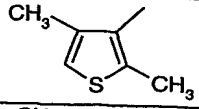
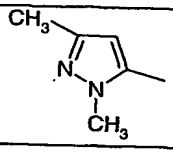
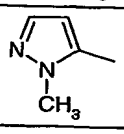
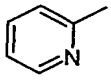
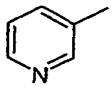
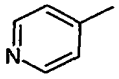
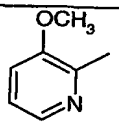
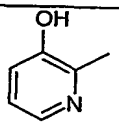
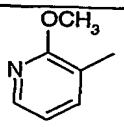
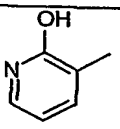
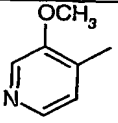
Comp. no.	R_4	R_1	R_2	X_1
A676	CF_2Cl	CH_2		O
A677	CF_2Cl	CH_2		O
A678	CF_2Cl	CH_2		O
A679	CF_2Cl	CH_2		O
A680	CF_2Cl	CH_2		O
A681	CF_2Cl	CH_2		O
A682	CF_2Cl	CH_2		S
A683	CF_2Cl	CH_2		SO
A684	CF_2Cl	CH_2		SO_2
A685	CF_2Cl	CH_2		O
A686	CF_2Cl	CH_2		O
A687	CF_2Cl	CH_2		O
A688	CF_2Cl	CH_2		O
A689	CF_2Cl	CH_2		O

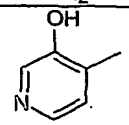
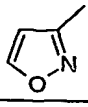
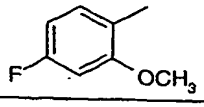
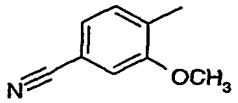
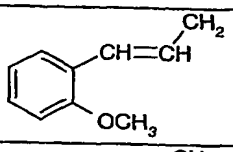
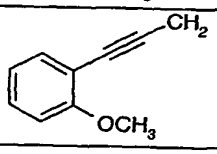
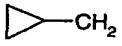
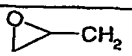
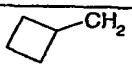
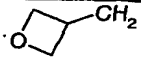
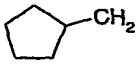
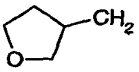
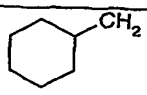
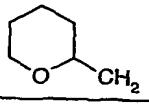
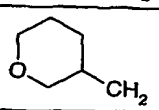
Comp. no.	R_4	R_1	R_2	X_1
A690	CF_2Cl	CH_2		O
A691	CF_2Cl	CH_2		O
A692	CF_2Cl	CH_2		O
A693	CF_2Cl	CH_2		O
A694	CF_2Cl	CH_2		O
A695	CF_2Cl	CH_2		O
A696	CF_2Cl	CH_2		O
A697	CF_2Cl	CH_2		O
A698	CF_2Cl	CH_2		O
A699	CF_2Cl	CH_2		O
A700	CF_2Cl	CH_2		O
A701	CF_2Cl	CH_2		O
A702	CF_2Cl	CH_2		O
A703	CF_2Cl	CH_2		O
A704	CF_2Cl	CH_2		O
A705	CF_2Cl	CH_2		O

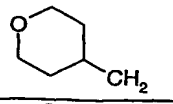
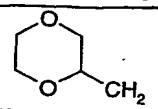
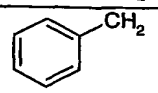
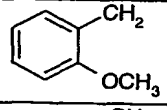
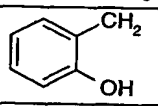
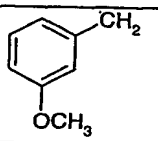
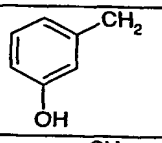
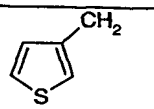
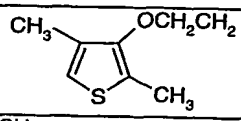
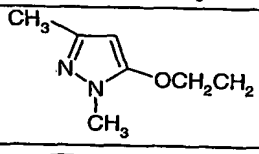
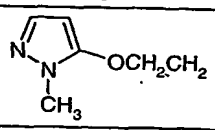
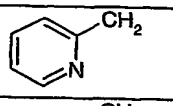
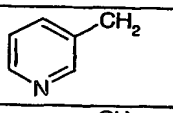
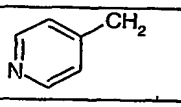
Comp. no.	R_4	R_1	R_2	X_1
A706	CF_2Cl	CH_2		O
A707	CF_2Cl	CH_2		O
A708	CF_2Cl	CH_2		O
A709	CF_2Cl	CH_2		O
A710	CF_2Cl	CH_2		O
A711	CF_2Cl	CH_2		O
A712	CF_2Cl	CH_2		O
A713	CF_2Cl	CH_2		O
A714	CF_2Cl	CH_2		O
A715	CF_2Cl	CH_2		O
A716	CF_2Cl	CH_2		O
A717	CF_2Cl	CH_2		O
A718	CF_2Cl	CH_2		O

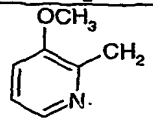
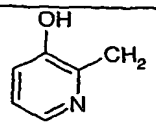
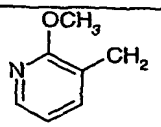
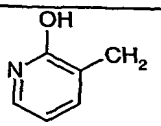
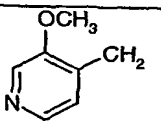
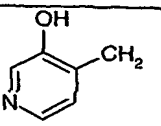
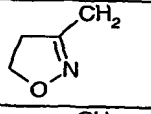
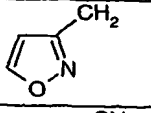
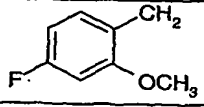
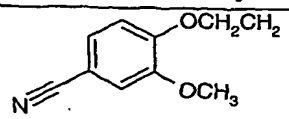
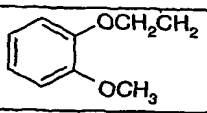
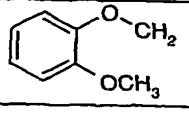
Comp. no.	R_4	R_1	R_2	X_1
A719	CF_2Cl	CH_2		O
A720	CF_2Cl	CH_2		O
A721	CF_2Cl	CH_2		O
A722	CF_2Cl	CH_2		O
A723	CF_2Cl	CH_2		O
A724	CF_2Cl	CH_2		O
A725	CF_2Cl	CH_2		O
A726	CF_2Cl	CH_2		O
A727	CF_2Cl	CH_2	CH_3	O
A728	CF_2Cl	CH_2	CH_2CH_3	O
A729	CF_2Cl	CH_2	$(CH_3)_2CH$	O
A730	CF_2Cl	CH_2	$PhCH_2$	O
A731	CF_2Cl	CH_2	CH_3	S
A732	CF_2Cl	CH_2	CH_3	SO
A733	CF_2Cl	CH_2	CH_3	SO_2
A734	CF_2Cl	CH_2	CH_3OCH_2	O
A735	CF_2Cl	CH_2	$CH_3CH_2OCH_2$	O
A736	CF_2Cl	CH_2	$CH_3OCH_2CH_2$	O
A737	CF_2Cl	CH_2	$CH_3CH_2OCH_2CH_2$	O
A738	CF_2Cl	CH_2	$CH_3OC(CH_3)_2CH_2$	O
A739	CF_2Cl	CH_2	$CH_3OCH(CH_3)CH_2$	O
A740	CF_2Cl	CH_2	$CH_3OCH_2CH(CH_3)$	O
A741	CF_2Cl	CH_2	$CH_3OCH_2C(CH_3)_2$	O

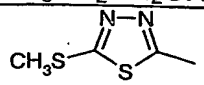
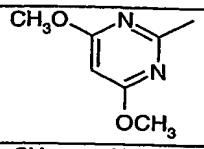
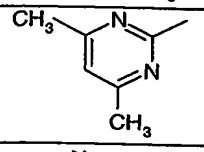
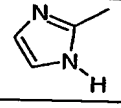
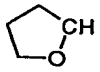
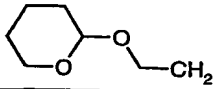
Comp. no.	R_4	R_1	R_2	X_1
A742	CF_2Cl	CH_2	$CH_3OCH(CH_3)$	O
A743	CF_2Cl	CH_2	$CH_3OC(CH_3)_2$	O
A744	CF_2Cl	CH_2	$HC\equiv CCH_2$	O
A745	CF_2Cl	CH_2	$H_2C=CHCH_2$	O
A746	CF_2Cl	CH_2	$CH_3C\equiv CCH_2$	O
A747	CF_2Cl	CH_2		O
A748	CF_2Cl	CH_2		O
A749	CF_2Cl	CH_2		O
A750	CF_2Cl	CH_2		O
A751	CF_2Cl	CH_2		O
A752	CF_2Cl	CH_2		O
A753	CF_2Cl	CH_2		O
A754	CF_2Cl	CH_2		O
A755	CF_2Cl	CH_2		O
A756	CF_2Cl	CH_2		O
A757	CF_2Cl	CH_2		O
A758	CF_2Cl	CH_2		O
A759	CF_2Cl	CH_2		O
A760	CF_2Cl	CH_2		O
A761	CF_2Cl	CH_2		O

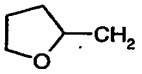
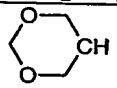
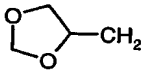
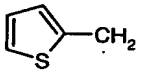
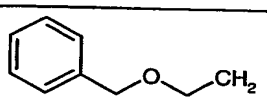
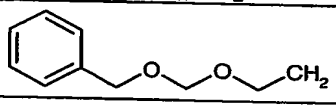
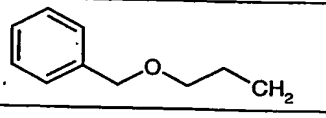
Comp. no.	R_4	R_1	R_2	X_1
A762	CF_2Cl	CH_2		O
A763	CF_2Cl	CH_2		O
A764	CF_2Cl	CH_2		O
A765	CF_2Cl	CH_2		O
A766	CF_2Cl	CH_2		O
A767	CF_2Cl	CH_2		O
A768	CF_2Cl	CH_2		O
A769	CF_2Cl	CH_2		O
A770	CF_2Cl	CH_2		O
A771	CF_2Cl	CH_2		O
A772	CF_2Cl	CH_2		O
A773	CF_2Cl	CH_2		O
A774	CF_2Cl	CH_2		O

Comp. no.	R_4	R_1	R_2	X_1
A775	CF_2Cl	CH_2		O
A776	CF_2Cl	CH_2		O
A777	CF_2Cl	CH_2		O
A778	CF_2Cl	CH_2		O
A779	CF_2Cl	CH_2		O
A780	CF_2Cl	CH_2		O
A781	CF_2Cl	CH_2		O
A782	CF_2Cl	CH_2		O
A783	CF_2Cl	CH_2		O
A784	CF_2Cl	CH_2		O
A785	CF_2Cl	CH_2		O
A786	CF_2Cl	CH_2		O
A787	CF_2Cl	CH_2		O
A788	CF_2Cl	CH_2		O
A789	CF_2Cl	CH_2		O
A790	CF_2Cl	CH_2		O

Comp. no.	R_4	R_1	R_2	X_1
A791	CF_2Cl	CH_2		O
A792	CF_2Cl	CH_2		O
A793	CF_2Cl	CH_2		O
A794	CF_2Cl	CH_2		O
A795	CF_2Cl	CH_2		O
A796	CF_2Cl	CH_2		O
A797	CF_2Cl	CH_2		O
A798	CF_2Cl	CH_2		O
A799	CF_2Cl	CH_2		O
A800	CF_2Cl	CH_2		O
A801	CF_2Cl	CH_2		O
A802	CF_2Cl	CH_2		O
A803	CF_2Cl	CH_2		O
A804	CF_2Cl	CH_2		O

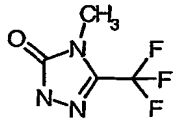
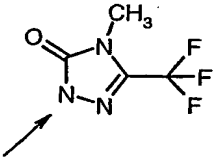
Comp. no.	R_4	R_1	R_2	X_1
A805	CF_2Cl	CH_2		O
A806	CF_2Cl	CH_2		O
A807	CF_2Cl	CH_2		O
A808	CF_2Cl	CH_2		O
A809	CF_2Cl	CH_2		O
A810	CF_2Cl	CH_2		O
A811	CF_2Cl	CH_2		O
A812	CF_2Cl	CH_2		O
A813	CF_2Cl	CH_2		O
A814	CF_2Cl	CH_2		O
A815	CF_2Cl	CH_2		O
A816	CF_2Cl	CH_2		O
A817	CF_3	CH_2	$CH_3SCH_2CH_2$	O
A818	CF_3	CH_2	$CH_3SOCH_2CH_2$	O
A819	CF_3	CH_2	$CH_3SO_2CH_2CH_2$	O
A820	CF_3	CH_2	$CH_3OCH_2CH_2$	O

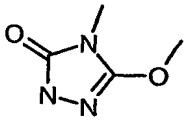
Comp. no.	R_4	R_1	R_2	X_1
A821	CF_3	CH_2	$CH_3OCH_2CH_2$	O
A822	CF_3	CH_2	$CH_3OCH_2CH_2$	O
A823	CF_3	CH_2	$CH_3OCH_2CH_2$	O
A824	CF_3	CH_2	$CH_3OCH_2CH_2$	O
A825	CF_3	CH_2	$CH_3OCH_2CH_2$	S
A826	CF_3	CH_2	$CH_3OCH_2CH_2$	SO
A827	CF_3	CH_2	$CH_3OCH_2CH_2$	SO_2
A828	CF_3	CH_2	$CH_3SO_2CH_2CH_2$	O
A829	CF_3	CH_2		S
A830	CF_3	CH_2		S
A831	CF_3	CH_2		S
A832	CF_3	CH_2		S
A833	CF_3	CH_2	$CH_3C(O)$	O
A834	CF_3	CH_2	CF_3CH_2	O
A835	CF_3	CH_2	$CH_3OCH_2CH_2OCH_2CH_2$	O
A836	CF_3	CH_2	$HC{\equiv}CCH_2CH_2$	O
A837	CF_3	CH_2		O
A838	CF_3	CH_2	$CH_3CH_2C(OCH_3)HOCH_2CH_2$	O
A839	CF_3	CH_2	$(CH_3)_3CC(O)$	O
A840	CF_3	CH_2	$CH_2{=}CHCH_2OCH_2CH_2$	O
A841	CF_3	CH_2	$CH_3CH_2CH_2OCH_2CH_2$	O
A842	CF_3	CH_2		O
A843	CF_3	CH_2	n-heptyl-C(O)	O
A844	CF_3	CH_2	phenyl-C(O)	O
A845	CF_3	CH_2	$CF_3CH_2OCH_2CH_2$	O
A846	CF_3	CH_2	$CH_3OCH_2CH_2CH_2$	O

Comp. no.	R_4	$-R_1$	R_2	X_1
A847	CF_3	CH_2	$HOCH_2CH_2CH_2$	O
A848	CF_3	CH_2		O
A849	CF_3	CH_2	$N{\equiv}CCH_2CH_2$	O
A850	CF_3	CH_2	$ClCH_2CH_2$	O
A851	CF_3	CH_2		O
A852	CF_3	CH_2		O
A853	CF_3	CH_2	$CH_3OCH_2C(Br)HCH_2$	O
A854	CF_3	CH_2		O
A855	CF_3	CH_2		O
A856	CF_3	CH_2	$HOCH_2CH_2$	O
A857	CF_3	CH_2		O
A858	CF_3	CH_2	$CH_3(OCH_2CH_2)_3$	O
A859	CF_3	CH_2	$CH_3CH_2OC(CH_3)HOCH_2CH_2$	O
A860	CF_3	CH_2	n-heptyl-$C(O)OCH_2CH_2$	O
A861	CF_3	CH_2	$CH_3C(O)OCH_2CH_2$	O
A862	CF_3	CH_2	$CH_3SO_2OCH_2CH_2$	O
A863	CF_3	CH_2		O
A864	CF_3	CH_2	CH_3	$-N(CH_3)SO_2-$
A865	CF_3	CH_2	$HOCH_2C(OH)HCH_2$	O
A866	CF_3	CH_2	phenyl-$C(O)OCH_2CH_2$	O
A867	CF_3	CH_2	tert-butyl-$C(O)OCH_2CH_2$	O
A868	CF_3	CH_2	$CH_3OC(O)CH_2$	O
A869	CF_3	$CH_2CH_2CH_2$	CH_3	O
A870	CF_3	$CH_2CH_2CH_2$	CH_2CH_3	O
A871	CF_2Cl	$CH_2CH_2CH_2$	CH_3	O
A872	CF_2Cl	$CH_2CH_2CH_2$	CH_2CH_3	O

The process according to the invention can be used especially advantageously for the preparation of the following compounds of Table 2:

In Table 2 which follows, the attachment position of the individual structures of the heterocycles of the group R_2 to the substituent R_1-X_1-, or to the C_1-C_4alkylene, C_2-C_4alkenyl-C_1-C_4alkylene, C_2-C_4alkynyl-C_1-C_4alkylene, -N(R_{12})-C_1-C_4alkylene, -SO-C_1-C_4alkylene or -SO_2-C_1-C_4alkylene groups which connect the heterocycle of R_2 to the basic structure of formula I, is that nitrogen atom which is located at the same geometric position as is indicated in the Example below.

For example, the attachment position of the group  in the case of compound A 1.001 is the position indicated by an arrow: 

The free valencies in those structures represent terminal CH_3 groups, as in the case of, for example, the structure 

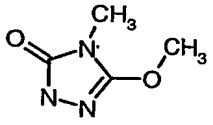
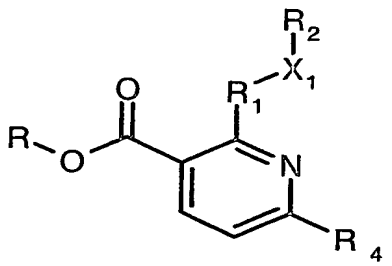
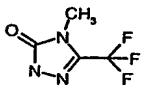
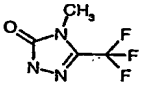
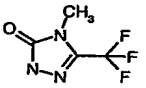
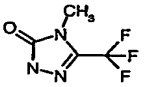
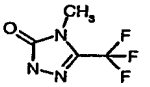
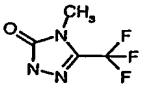
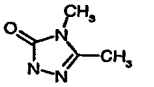
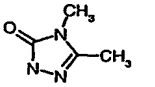
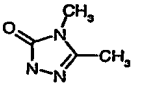
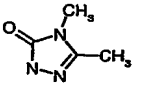
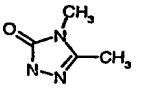
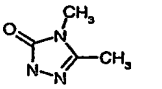
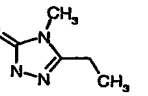
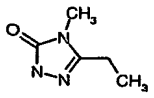
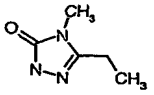
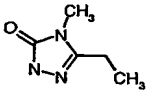
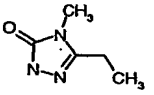
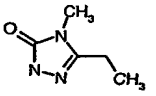
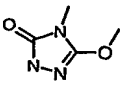
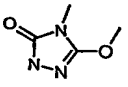
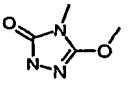
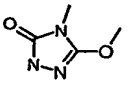
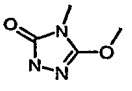
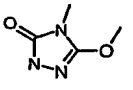
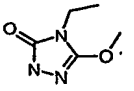
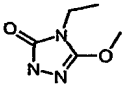
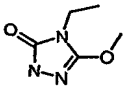
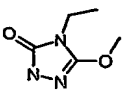
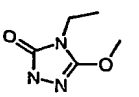
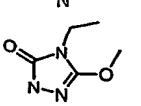
which may also be depicted as follows: 

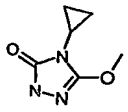
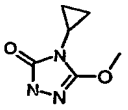
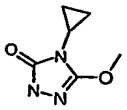
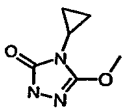
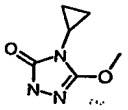
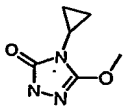
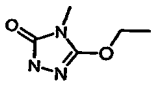
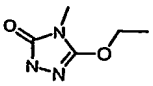
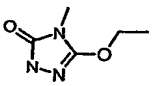
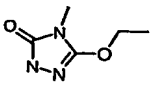
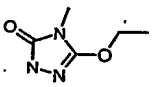
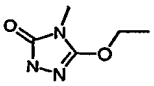
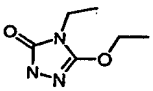
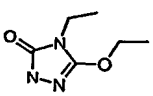
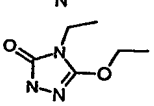
Table 2: Compounds of formula Ia wherein R is either methyl or ethyl:

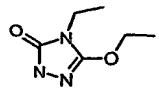
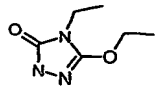
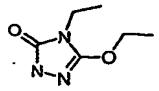
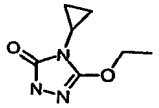
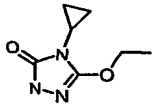
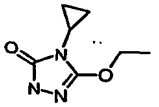
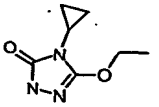
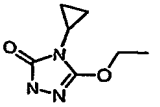
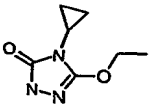
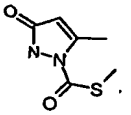
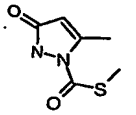
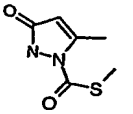
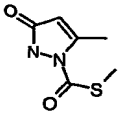
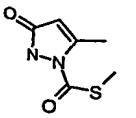


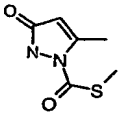
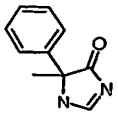
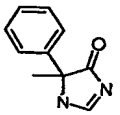
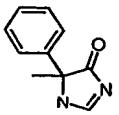
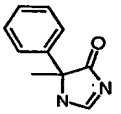
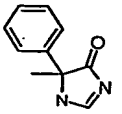
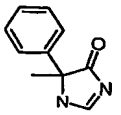
(Ia)

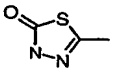
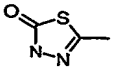
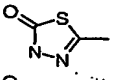
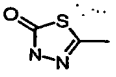
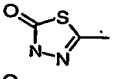
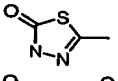
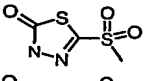
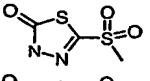
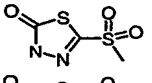
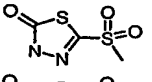
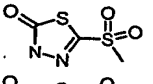
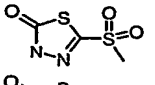
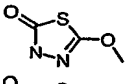
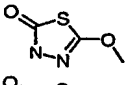
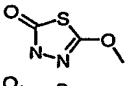
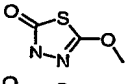
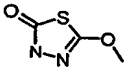
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.001	CF_2Cl	CH_2	
A1.002	CF_2H	CH_2	
A1.003	CF_3	CH_2	
A1.004	CF_3	$CH_2OCH_2CH_2$	
A1.005	CF_2Cl	$CH_2OCH_2CH_2$	
A1.006	CHF_2	$CH_2OCH_2CH_2$	
A1.007	CF_3	CH_2	
A1.008	CF_2Cl	CH_2	
A1.009	CHF_2	CH_2	
A1.010	CF_3	$CH_2OCH_2CH_2$	
A1.011	CF_2Cl	$CH_2OCH_2CH_2$	
A1.012	CHF_2	$CH_2OCH_2CH_2$	
A1.013	CF_3	CH_2	

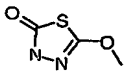
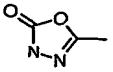
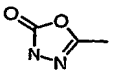
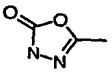
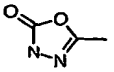
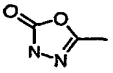
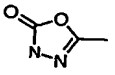
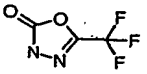
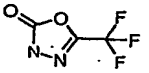
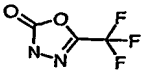
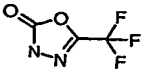
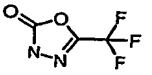
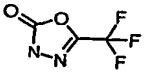
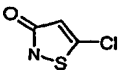
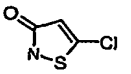
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.014	CF_2Cl	CH_2	
A1.015	CHF_2	CH_2	
A1.016	CF_3	$CH_2OCH_2CH_2$	
A1.017	CF_2Cl	$CH_2OCH_2CH_2$	
A1.018	CHF_2	$CH_2OCH_2CH_2$	
A1.019	CF_3	CH_2	
A1.020	CF_2Cl	CH_2	
A1.021	CHF_2	CH_2	
A1.022	CF_3	$CH_2OCH_2CH_2$	
A1.023	CF_2Cl	$CH_2OCH_2CH_2$	
A1.024	CHF_2	$CH_2OCH_2CH_2$	
A1.025	CF_3	CH_2	
A1.026	CF_2Cl	CH_2	
A1.027	CHF_2	CH_2	
A1.028	CF_3	$CH_2OCH_2CH_2$	
A1.029	CF_2Cl	$CH_2OCH_2CH_2$	
A1.030	CHF_2	$CH_2OCH_2CH_2$	

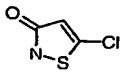
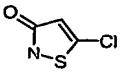
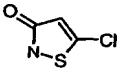
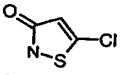
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.031	CF_3	CH_2	
A1.032	CF_2Cl	CH_2	
A1.033	CHF_2	CH_2	
A1.034	CF_3	$CH_2OCH_2CH_2$	
A1.035	CF_2Cl	$CH_2OCH_2CH_2$	
A1.036	CHF_2	$CH_2OCH_2CH_2$	
A1.037	CF_3	CH_2	
A1.038	CF_2Cl	CH_2	
A1.039	CHF_2	CH_2	
A1.040	CF_3	$CH_2OCH_2CH_2$	
A1.041	CF_2Cl	$CH_2OCH_2CH_2$	
A1.042	CHF_2	$CH_2OCH_2CH_2$	
A1.043	CF_3	CH_2	
A1.044	CF_2Cl	CH_2	
A1.045	CHF_2	CH_2	

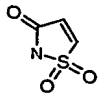
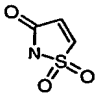
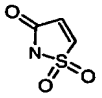
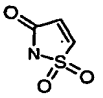
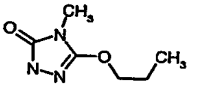
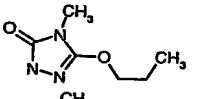
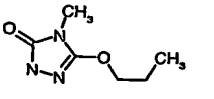
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.046	CF_3	$CH_2OCH_2CH_2$	
A1.047	CF_2Cl	$CH_2OCH_2CH_2$	
A1.048	CHF_2	$CH_2OCH_2CH_2$	
A1.049	CF_3	CH_2	
A1.050	CF_2Cl	CH_2	
A1.051	CHF_2	CH_2	
A1.052	CF_3	$CH_2OCH_2CH_2$	
A1.053	CF_2Cl	$CH_2OCH_2CH_2$	
A1.054	CHF_2	$CH_2OCH_2CH_2$	
A1.055	CF_3	CH_2	
A1.056	CF_2Cl	CH_2	
A1.057	CHF_2	CH_2	
A1.058	CF_3	$CH_2OCH_2CH_2$	
A1.059	CF_2Cl	$CH_2OCH_2CH_2$	

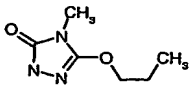
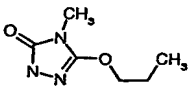
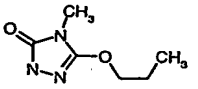
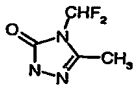
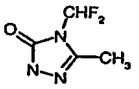
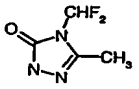
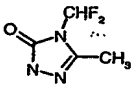
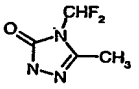
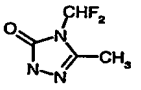
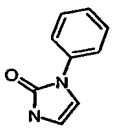
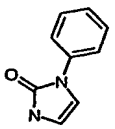
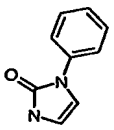
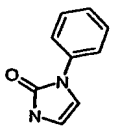
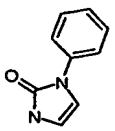
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.060	CHF_2	$CH_2OCH_2CH_2$	
A1.061	CF_3	CH_2	
A1.062	CF_2Cl	CH_2	
A1.063	CHF_2	CH_2	
A1.064	CF_3	$CH_2OCH_2CH_2$	
A1.065	CF_2Cl	$CH_2OCH_2CH_2$	
A1.066	CHF_2	$CH_2OCH_2CH_2$	
A1.067	CF_3	CH_2	
A1.068	CF_2Cl	CH_2	
A1.069	CHF_2	CH_2	
A1.070	CF_3	$CH_2OCH_2CH_2$	
A1.071	CF_2Cl	$CH_2OCH_2CH_2$	
A1.072	CHF_2	$CH_2OCH_2CH_2$	
A1.073	CF_3	CH_2	
A1.074	CF_2Cl	CH_2	

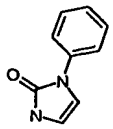
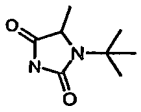
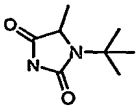
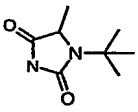
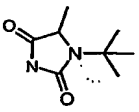
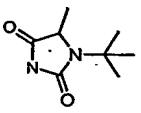
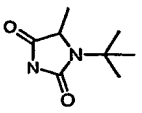
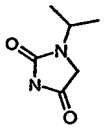
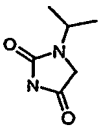
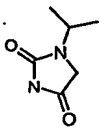
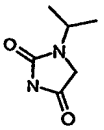
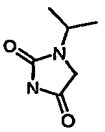
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.075	CHF_2	CH_2	
A1.076	CF_3	$CH_2OCH_2CH_2$	
A1.077	CF_2Cl	$CH_2OCH_2CH_2$	
A1.078	CHF_2	$CH_2OCH_2CH_2$	
A1.079	CF_3	CH_2	
A1.080	CF_2Cl	CH_2	
A1.081	CHF_2	CH_2	
A1.082	CF_3	$CH_2OCH_2CH_2$	
A1.083	CF_2Cl	$CH_2OCH_2CH_2$	
A1.084	CHF_2	$CH_2OCH_2CH_2$	
A1.085	CF_3	CH_2	
A1.086	CF_2Cl	CH_2	
A1.087	CHF_2	CH_2	
A1.088	CF_3	$CH_2OCH_2CH_2$	
A1.089	CF_2Cl	$CH_2OCH_2CH_2$	
A1.090	CHF_2	$CH_2OCH_2CH_2$	
A1.091	CF_3	CH_2	
A1.092	CF_2Cl	CH_2	
A1.093	CHF_2	CH_2	
A1.094	CF_3	$CH_2OCH_2CH_2$	
A1.095	CF_2Cl	$CH_2OCH_2CH_2$	

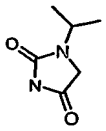
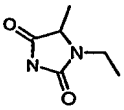
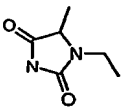
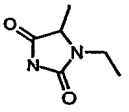
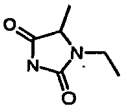
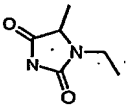
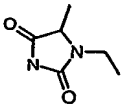
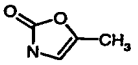
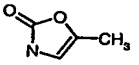
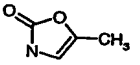
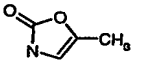
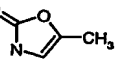
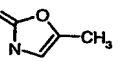
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.096	CHF_2	$CH_2OCH_2CH_2$	
A1.097	CF_3	CH_2	
A1.098	CF_2Cl	CH_2	
A1.099	CHF_2	CH_2	
A1.100	CF_3	$CH_2OCH_2CH_2$	
A1.101	CF_2Cl	$CH_2OCH_2CH_2$	
A1.102	CHF_2	$CH_2OCH_2CH_2$	
A1.103	CF_3	CH_2	
A1.104	CF_2Cl	CH_2	
A1.105	CHF_2	CH_2	
A1.106	CF_3	$CH_2OCH_2CH_2$	
A1.107	CF_2Cl	$CH_2OCH_2CH_2$	
A1.108	CHF_2	$CH_2OCH_2CH_2$	
A1.109	CF_3	CH_2	
A1.110	CF_2Cl	CH_2	
A1.111	CHF_2	CH_2	
A1.112	CF_3	$CH_2OCH_2CH_2$	
A1.113	CF_2Cl	$CH_2OCH_2CH_2$	
A1.114	CHF_2	$CH_2OCH_2CH_2$	
A1.115	CF_3	CH_2	
A1.116	CF_2Cl	CH_2	

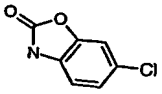
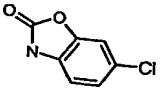
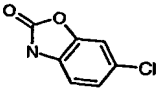
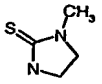
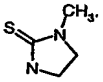
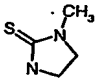
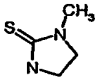
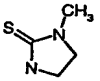
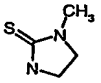
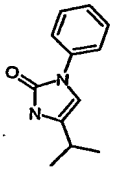
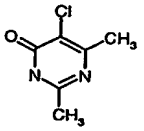
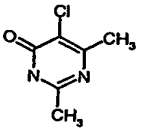
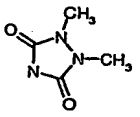
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.117	CHF_2	CH_2	
A1.118	CF_3	$CH_2OCH_2CH_2$	
A1.119	CF_2Cl	$CH_2OCH_2CH_2$	
A1.120	CHF_2	$CH_2OCH_2CH_2$	
A1.121	CF_3	CH_2	
A1.122	CF_2Cl	CH_2	
A1.123	CHF_2	CH_2	
A1.124	CF_3	$CH_2OCH_2CH_2$	
A1.125	CF_2Cl	$CH_2OCH_2CH_2$	
A1.126	CHF_2	$CH_2OCH_2CH_2$	
A1.127	CF_3	CH_2	
A1.128	CF_2Cl	CH_2	
A1.129	CHF_2	CH_2	
A1.130	CF_3	$CH_2OCH_2CH_2$	
A1.131	CF_2Cl	$CH_2OCH_2CH_2$	
A1.132	CHF_2	$CH_2OCH_2CH_2$	
A1.133	CF_3	CH_2	
A1.134	CF_2Cl	CH_2	

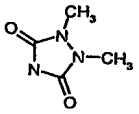
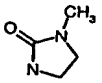
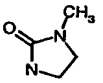
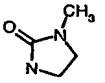
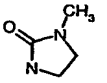
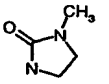
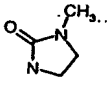
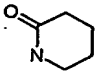
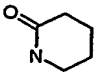
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.135	CHF_2	CH_2	
A1.136	CF_3	$CH_2OCH_2CH_2$	
A1.137	CF_2Cl	$CH_2OCH_2CH_2$	
A1.138	CHF_2	$CH_2OCH_2CH_2$	
A1.139	CF_3	CH_2	
A1.140	CF_2Cl	CH_2	
A1.141	CHF_2	CH_2	
A1.142	CF_3	$CH_2OCH_2CH_2$	
A1.143	CF_2Cl	$CH_2OCH_2CH_2$	
A1.144	CHF_2	$CH_2OCH_2CH_2$	
A1.145	CF_3	CH_2	
A1.146	CF_2Cl	CH_2	
A1.147	CHF_2	CH_2	
A1.148	CF_3	$CH_2OCH_2CH_2$	
A1.149	CF_2Cl	$CH_2OCH_2CH_2$	
A1.150	CHF_2	$CH_2OCH_2CH_2$	
A1.151	CF_3	CH_2	
A1.152	CF_2Cl	CH_2	
A1.153	CHF_2	CH_2	

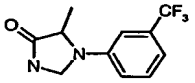
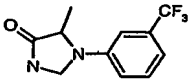
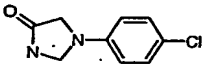
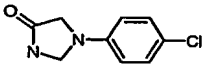
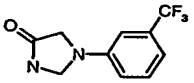
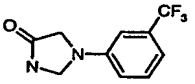
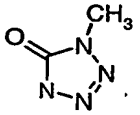
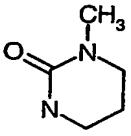
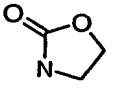
Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.154	CF_3	$CH_2OCH_2CH_2$	
A1.155	CF_2Cl	$CH_2OCH_2CH_2$	
A1.156	CHF_2	$CH_2OCH_2CH_2$	
A1.157	CF_3	CH_2	
A1.158	CF_2Cl	CH_2	
A1.159	CHF_2	CH_2	
A1.160	CF_3	$CH_2OCH_2CH_2$	
A1.161	CF_2Cl	$CH_2OCH_2CH_2$	
A1.162	CHF_2	$CH_2OCH_2CH_2$	
A1.163	CF_3	CH_2	
A1.164	CF_2Cl	CH_2	
A1.165	CHF_2	CH_2	
A1.166	CF_3	$CH_2OCH_2CH_2$	
A1.167	CF_2Cl	$CH_2OCH_2CH_2$	

Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.168	CHF_2	$CH_2OCH_2CH_2$	
A1.169	CF_3	CH_2	
A1.170	CF_2Cl	CH_2	
A1.171	CHF_2	CH_2	
A1.172	CF_3	$CH_2OCH_2CH_2$	
A1.173	CF_2Cl	$CH_2OCH_2CH_2$	
A1.174	CHF_2	$CH_2OCH_2CH_2$	
A1.175	CF_3	CH_2	
A1.176	CF_2Cl	CH_2	
A1.177	CHF_2	CH_2	
A1.178	CF_3	$CH_2OCH_2CH_2$	
A1.179	CF_2Cl	$CH_2OCH_2CH_2$	

Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.180	CHF_2	$CH_2OCH_2CH_2$	
A1.181	CF_3	CH_2	
A1.182	CF_2Cl	CH_2	
A1.183	CHF_2	CH_2	
A1.184	CF_3	$CH_2OCH_2CH_2$	
A1.185	CF_2Cl	$CH_2OCH_2CH_2$	
A1.186	CHF_2	$CH_2OCH_2CH_2$	
A1.187	CF_3	CH_2	
A1.188	CF_2Cl	CH_2	
A1.189	CHF_2	CH_2	
A1.190	CF_3	$CH_2OCH_2CH_2$	
A1.191	CF_2Cl	$CH_2OCH_2CH_2$	
A1.192	CHF_2	$CH_2OCH_2CH_2$	
A1.193	CF_3	CH_2	
A1.194	CF_2Cl	CH_2	
A1.195	CHF_2	CH_2	
A1.196	CF_3	$CH_2OCH_2CH_2$	

Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.197	CF_2Cl	$CH_2OCH_2CH_2$	
A1.198	CHF_2	$CH_2OCH_2CH_2$	
A1.199	CF_3	CH_2	
A1.200	CF_2Cl	CH_2	
A1.201	CHF_2	CH_2	
A1.202	CF_3	CH_2	
A1.203	CF_2Cl	CH_2	
A1.204	CHF_2	CH_2	
A1.205	CF_3	$CH_2OCH_2CH_2$	
A1.206	CF_2Cl	$CH_2OCH_2CH_2$	
A1.207	CHF_2	$CH_2OCH_2CH_2$	
A1.208	CF_3	CH_2	
A1.209	CF_3	CH_2	
A1.210	CHF_2	CH_2	
A1.211	CF_3	CH_2	

Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.212	CHF_2	CH_2	
A1.213	CF_3	CH_2	
A1.214	CF_2Cl	CH_2	
A1.215	CHF_2	CH_2	
A1.216	CF_3	$CH_2OCH_2CH_2$	
A1.217	CF_2Cl	$CH_2OCH_2CH_2$	
A1.218	CHF_2	$CH_2OCH_2CH_2$	
A1.219	CF_3	CH_2	
A1.220	CF_3	$CH_2OCH_2CH_2$	
A1.221	CF_3	CH_2	
A1.222	CF_3	CH_2	
A1.223	CF_3	CH_2	
A1.224	CF_3	CH_2	
A1.225	$CClF_2$	CH_2	
A1.226	$CClF_2$	CH_2	
A1.227	$CClF_2$	CH_2	
A1.228	$CClF_2$	CH_2	
A1.229	$CClF_2$	CH_2	

Comp. no.	R_4	$-R_1-$	$-X_1-R_2$
A1.230	CHF_2	CH_2	
A1.231	CHF_2	CH_2	
A1.232	CHF_2	CH_2	
A1.233	CHF_2	CH_2	
A1.234	CHF_2	CH_2	
A1.235	CF_3	CH_2	
A1.236	CHF_2	CH_2	
A1.237	CF_3	CH_2	
A1.238	CHF_2	CH_2	
A1.240	CF_3	CH_2	
A1.241	CHF_2	CH_2	
A1.242	CF_3	CH_2	
A1.243	CF_3	CH_2	
A1.244	CF_3	CH_2	
A1.245	CF_3	CH_2